SANYO MICROPRO

(Quick Reference to MicroPro Software and Printer Instruction.)

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FORWARD

Congratulations on your choice of a Sanyo MBC Series Micro Business Computer.

Your MBC is a compact, but powerful computer designed to satisfy the demanding requirements of todays "post-industrial" society.

The MBC series of microcomputers incorporate numerous high-level features to meet the exacting demands of the business and professional user.

These include a full 80 column non-glare screen and crisp character display to eliminate strain on the eyes over long periods of use. High-capacity, fast-access disk drives for efficient program/data storage. And an ergonomically designed keyboard for fast professional typing; detached for comfortable individual positioning.

Sanyo have also been among the first to recognize the importance of high-performance software to professional computer systems. The industry standard CP/M or MS-DOS operating system is included; as is a powerful BASIC interpreter for high-level personal programming.

For professional applications, Sanyo has teamed up with the international expertise of MicroPro, to offer a full range of outstanding software. The widely-respected WordStar meet the most demanding word processing requirements. CalcStar provides for sophisticated, yet simple to use, financial planning and business decision-making.

Sanyo hardware. MicroPro software. A professional combination.

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INTRODUCTION

WordStar

WordStar is a high-performance word processing software package that gives your microcomputer the power of a dedicated word processing system, such that WordStar has more than four times the number of users as the most popular dedicated word processor. The power and performance that WordStar offers have made it the industry standard for word processing. And like all the programs in the MicroPro family, WordStar is easy to learn and easy to use.

WordStar word processing helps you communicate both better and faster. Anyone who has ever typed knows that editing and corrections have to be made which often require retyping of whole pages. WordStar eliminates the waste. It allows you to enter the text, rearrange paragraphs or blocks of text, edit, correct typos, insert information from other documents, reformat, proofread and paginate — so that what you print is an error-free, professional-looking document.

WordStar features are all available in conformity with the MBC series computers.

CalcStar

CalcStar is a powerful electronic spreadsheet — a sophisticated yet easy to use calculating and business planning program, designed to work with other members of the MicroPro family of quality software.

CalcStar turns your screen into a "window" on a giant ledger sheet. It helps you make budget plans and sales forecasts with speed and accuracy, eliminating the need for pencils and calculators.

You can also ask your "What if" questions and let CalcStar give you rapid answers to produce cash flow analyses, resource allocation studies, new business plans, budget forecasts, and profitability analyses.

CalcStar is so installed that it is perfectly in conformity with the MBC series computers. The execution of INSTCS.COM is unnecessary.

WORDSTAR REFERENCE

PROGRAM FUNCTION KEYS

PF1	= ^JH	Set help level
PF2	= ^OG	Paragraph tab
PF3	= ^OL <ESC>	Set left margin to cursor position
PF4	= ^OR <ESC>	Set right margin to cursor position
PF5	= ^PS	Underscore beginning/ending
PF6	= ^PB	Boldface beginning/ending
PF7	= ^KB	Mark block beginning
PF8	= ^KK	Mark block ending
PF9	= ^QR	Cursor to beginning of file
PF10	= ^QC	Cursor to end of file

CURSOR MOVEMENT KEYS

←	= ^S	Left one character
→	= ^D	Right one character
↑	= ^E	Up one line
↓	= ^X	Down one line
↖	= ^QE	Top left corner of screen

NO-FILE MENU

D Used to create/edit a document, letter, file, etc.
E Used to rename a file.
F Turns the file directory display on and off.
H Allows the user to display and set the help level (3–0).
L Changes the logged disk drive from A: to B: to C:, etc.
M Used to run MailMerge.
N Used to create/edit a data file or a program.
O Used to make a duplicate copy of a file under a different name without changing the contents of the original.
P Used to print a file to printer or to disk.
R Used to run other programs under the WordStar NO-FILE MENU.
S Used to run SpellStar.
X Allows the user to exit from the WordStar NO-FILE MENU and return control to CP/M to turn your computer off or for use with other software.
Y Used to delete unnecessary files such as those with the ".BAK" extention or files you have no further need for.

MAIN MENU

Cursor Movement

^A Moves cursor to the left one full word.
^D Moves cursor to the right one character.
^E Moves cursor up one line.
^F Moves cursor to the right one full word.
^S Moves cursor to the left one character.
^X Moves cursor down one line.

Scrolling

^C Scrolls the screen up one screen at a time overlapping 5 or 6 lines to let you see where you were.
^R Scrolls the screen down one screen at a time overlapping 5 or 6 lines to let you see where you were.
^W Scrolls the screen down one line bringing a new line of text into view at the top of the screen.
^Z Scrolls the screen up one line bringing a new line of text into view at the bottom of the screen.

^QD Moves the cursor to the right-most character of the current line. If the current line is wider than 80 columns, ^QD will horizontally scroll you 20 or so columns at a time until the end of that line is reached.

^QE Moves the cursor to the top most line visible on the current screen.

^QK Moves the cursor to the block end marker "<K>" if it has been set; otherwise an error message will appear.

^QP Moves the cursor to the position it was at before the previous command was activated. (e.g. After you save a file using ^KS your cursor returns to the beginning of your file. If you press ^QP immediately after the file has been saved, your cursor will return to the exact same position it was at before you pressed ^KS.

^QR Moves the cursor to the very beginning of a file regardless of where the cursor is positioned. If a file is large, and you wish to move from near the end of the file all the way to the beginning, pressing ^KS is much quicker and takes up less working disk space.

^QS Moves the cursor to column 1 of the current line.

^QV Moves the cursor to the last string of characters in which you either asked the computer to find/find & replace, or in which you marked a block of text using ^KB and ^KK.

^QW Continuously scrolls the screen down one line at a time. The speed of the scrolling can be varied by typing a number from 1 to 9, 1 being the fastest speed, and 9 the slowest. To stop scrolling, press the space bar.

^QX Moves the cursor to the next-to-bottom-most line visible on the current screen as the bottom line is actually a preview line of the next screenful and will not allow the cursor to be moved into it without first scrolling up one line.

^QZ Continuously scrolls the screen up one line at a time. The speed of the scrolling can be varied by typing a number from 1 to 9, 1 being the fastest speed, and 9 the slowest. To stop scrolling, press the space bar.

^Q0 Moves cursor to the specified place marker <0> through <9>
which ^Q1 was set by the ^K0 — ^K9 command. If a place marker has
^Q9 not been set using the ^K command an error message will appear.

Delete

^QY Deletes all characters from the cursor position to the rightmost character in the same line as the cursor is in.

^QDEL Deletes all characters from column 1 of the line the cursor is in to the character just to the left of the cursor position.

Miscellaneous

^QA Finds a string of text in a file and replaces it with another string. Options are the same as for ^QF with two extras: find and replace globally (from beginning to end), and replace with or without asking at each occurrence.

^QF Finds a string of text in a file. Allows the user the option of finding a string a certain number of times, searching backwards through the file, looking for prefixed words or whole words only, and ignoring upper/lower case letters.

^QL Finds words that were marked with SpellStar. If this command is executed before using SpellStar, it will not find any flagged words as SpellStar has not set/marked any.

^QQ Repeat command. Repeats the next character or command input from the keyboard. (e.g. If ^QQ@ were pressed, a line of @@@'s would automatically be repeated across your screen. ^QQ^F would repeatedly move the cursor forward one word at a time.) The speed can be changed by pressing a number between 1 and 9; 1 being the fastest, 9 the slowest. To stop the repetitive command/character, press the space bar.

ONSCREEN MENU

Margins & Tabs

^OF Allows user to set both margins to match the length of the text the cursor is currently in.

^OG Temporarily indents your left margin to the next tab stop until a user entered return is encountered. Then the left margin is reset to its original column. Pressing ^OG more than once will indent your left margin that number of times.

^OI Sets a regular tab stop by typing the column number in which to place that tab, or sets a decimal tab by preceding that tab column number with the symbol "#". Pressing <ESC> without typing a number will set a tab at the cursors' location before ^OI was pressed. Typing a "#" and pressing <ESC> will set a decimal tab at the cursor column.

^OL Sets left margin to user specified width between 1 and 240.

^ON Clears either one tab stop at a time by typing the column number of the tab you wish to clear, or clears all tab stops by typing "A" or "a". With the cursor positioned in the same column as the tab you wish to clear, only <ESC> need be pressed to clear that tab.

^OR Sets right margin to user specified width between 1 and 240.
^OX Temporarily releases margins to allow user to move cursor outside the regular margins. This command is automatically cancelled once the cursor is moved back within the standard margin or upon executing another ^OX.

Line Functions

^OC Centers text in the line the cursor is currently in, between the left and right margins, after the text has been entered. The cursor can be placed anywhere within the line to center the text.
^OS Allows automatic setting of line spacing from 1 to 9 lines. Works for word wrap, for reformatting (^B), etc. If line spacing is set to other than single space, the status line will display the line spacing that is currently set just to the right of the INSERT ON display.

Toggles

^OD Toggle to turn print control characters (from the ^P menu) and soft hyphens that will not print ON or OFF. Defaulted to (ON). Used when checking for final layout on the screen before printing without having to overlook all of the print control characters embedded in your text.
^OE Toggle to turn soft hyphen entry ON or OFF. Defaulted to (OFF). Soft hyphens are hyphens that will only print if they fall at the right margin during paragraph reform. The hyphen help routine uses soft hyphens.
^OH Toggle to turn hyphen help routine ON or OFF. Defaulted to (ON). Will automatically carry the word that won't fit on the current line to the next line without stopping for hyphenation when set to OFF.
^OJ Toggle to turn justification ON or OFF. Defaulted to (ON). Used to change from justified text to ragged right text.
^OP Toggle to turn page break displays ON or OFF. Defaulted to (ON). Note: This command will change the display of your status line from "PAGE ? LINE ?? COL ??" to "FC=????? FL=?????". FC (File Characters) displays the numbers of bytes your cursor is currently positioned at from the beginning of your file. FL (File Lines) displays the total number of file lines from the beginning of your document to the current cursor line. Both of these commands include the counting of dot commands, print control characters, returns, etc, along with all the standard ASCII characters.

^OT Toggle to turn the ruler line ON or OFF. Defaulted to (ON). When turned off, allows one extra line per screenful to be displayed.
^OV Toggle to turn variable tabs ON or OFF. Defaulted to (ON).
^OW Toggle to turn word wrap ON or OFF. Defaulted to (ON).

BLOCK MENU

Saving Files

^KD Allows you to save the current file to disk and then returns you to the NO-FILE menu from which you may select another function such as printing the file you just saved, editing another file, etc. (See NO-FILE menu).
^KQ Abandons all changes that have been made since the last time the file was saved with either ^KS, ^KD, or ^KX.
^KS Allows you to save the current file to disk and continue editing/reviewing the file. Using ^QP after saving in this method will return your cursor to the exact position it was at before ^KS was pressed. If another character has been pressed between ^KS and ^QP, the ^QP function is cancelled.
^KX Allows you to save the current file to disk and then exits WordStar just as if you had originally pressed ^KD and then ^X from the NO-FILE menu.

Place Markers

^K0 Sets up to 10 temporary place markers <0> to <9> anywhere in your text
| to be returned to quickly by using ^Q0–9. Markers appear in the text as
^K9 <1>, <2>, etc. To hide the markers, position the cursor at the same position as the marker and press ^K and that number again. Note: Once you have exited from your file, all place markers will disappear, and will have to be reset if you wish to use them again.

Block Operations

^KB Marks the beginning of a block of text to be moved, copied, deleted, or written to another file. Displays as a <B> on your screen.

^KC Copies all text between the block beginning marker <B> and the block end marker <K> to the cursor position. After a block of text is marked, and the markers are displayed, move your cursor to the location you want the information copied, and press ^KC. Any text that was to the right or below the cursor position will be moved below the newly copied block of text. If the markers are not set, or the markers are hidden, or the end marker is before the beginning marker or if one marker is missing, an error message will result.

^KH Hides the <B> and <K> block markers. Once they are hidden, they may be displayed again by pressing ^KH once more. If a command is given to move, copy, delete, or write a block of text while the markers are hidden, an error message will result.

^KK Marks the end of a block of text to be moved, copied, deleted, or written to another file. Displays as a <K> on your screen.

^KN Changes from block mode to column mode. A block of text contains all text between the <B> and <K> markers. A column of text contains all text starting at the same column as the <B> (marking the top left corner) and ending with all text up to the same column as the <K> (marking the bottom right corner) not including the text that falls before the <B> column or after the <K> column.

^KV Same as the ^KC command above, except that it moves the block of text to the cursor position instead of copying it. The same errors will also occur if the block markers are incorrectly set.

^KW Same as the ^KC command above, except that it writes all text to another file specified by the user when the prompt

NAME OF FILE TO WRITE MARK TEXT ON?

appears at the top of the screen. If you specify a file that already exists, a warning message will also be displayed telling you that a file by that name already exists, and asks you OVERWRITE (Y/N)?. Pressing "Y" will cause the previous contents of that file to be destroyed and replaced with the contents of the new block of text you are writing. Pressing "N" will not overwrite that file, but again ask you for the name of the file to write the marked text on giving you the option of typing in a different name.

^KY Same as the ^KC command above, except that it deletes all text between <B> and <K> and closes up the gap after the text has been deleted.

File Operations

^KE Allows the user to rename any file except the one you are working on to another name. If you specify the file you are working on, an error message will appear, and the prompt asking to specify another name will appear again.

^KJ Allows the user to delete files while editing a different file. This is useful if you are saving text and find out that you have no disk space left to completely save the file you are currently working on. If this should happen, you may temporarily delete one or both of the WordStar overlay files to give you enough room on your disk to complete the save process. After a successful save, you will have to recopy the two overlay files back onto your disk before you can use WordStar again. It is recommended that you transfer one or more of the files that were on that disk to another disk prior to recopying the overlays.

^KO Allows the user to copy one file to another while editing a third file. If you are copying from the same file you are editing, only that portion of text which has been stored on disk will be copied, and not the portion in which you are currently keying in and not yet saved.

^KP Allows the user to print a file while editing another file. Offers the same printing prompts as if you were printing from the NO-FILE menu.
WARNING: If you decide to print the same file you are editing while you are editing, the printer will only print that portion of text you have already saved to disk. In other words, if you have made some changes to your file, but not yet saved that file, those changes will not be print. Also, you cannot save that same file that is printing until after the printing command has finished, or until you cancel the printing command by pressing ^KP and then typing "Y" to abort printing.

^KR Reads a file other than the one you are working on into the cursor position pushing all text to the right and below the cursor down below the end of the file being read in. The file being read may contain anywhere from one character to the maximum capacity of your disk. Hint: If you wanted to copy a large paragraph/page of text from the beginning of a large file to a place near the end of that file, it may be quicker to write that paragraph/page to a temporary file, move your cursor to the place you want to copy it to and then read it in from the temporary file you created.

Disk Operations

^KF Allows the user to view the disk directory of the currently logged disk drive at the top of the screen. This is a toggle command. Press ^KF once and the directory appears, ^KF again, and it disappears.

^KL Allows the user to change logged disk drives just as if ^L had been keyed in under the NO-FILE menu.

PRINT MENU

Special Effects (begin and end)

^PB Tells the printer where to start and stop boldfacing text. Must be told where to start and stop, otherwise boldfacing will continue through to the end of the document.

^PD Tells the printer where to start and stop doublestriking text. Must be told where to start and stop.

^PS Tells the printer where to start and stop underlining text. Must be told where to start and stop.

^PT Tells the printer where to start and stop superscripting text. The height of the superscripts may be changed using the dot command ".SRn". Must be told where to start and stop.

^PV Tells the printer where to start and stop subscripting text. The height of the subscripts may be changed using the dot command ".SRn". Must be told where to start and stop.

^PX Tells the printer where to start and stop striking-out text. Must be told where to start and stop.

Special Effects (one time each)

^PF Allows the user to print one of two characters provided on 96 character daisy wheels with only a 94 character keyboard. On a standard COURIER 10 daisy wheel, ^PF will print the "cent (¢)" symbol not appearing on most keyboards. Depending on the daisy you are using, this symbol may vary.

^PG Allows the user to print the other of the two characters provided on 96 character daisy wheels with only a 94 character keyboard. On a standard COURIER 10 daisy wheel, ^PG will print the "logical not (¬)" symbol not appearing on most keyboards. Depending on the daisy you are using, this symbol may vary.

^PH Placing this character between any two characters will cause the latter character to overprint the former. (e.g. Y plus = yields ¥, c plus | yields ¢). May be done with three or more characters also by continuing to key in^PH after each character you want to have struck over with another character.

^PO Special non-break space. Used between product names, etc. instead of a normal space in case later reforming would normally cause the "IX" in the name "CENTROID IX" to be carried to a new line. Using ^PO instead of a "space" will not let WordStar break that product name.

^PRETURN Inserts an overprint line flag "—" in the right-most column of your screen and positioning your cursor in the line below the line you pressed ^PRET(URN). Causes the line following the line in which the command was type to overprint the previous line. Used for special effects.

Printing Changes

^PA Changes the printing pitch from standard pitch to alternate pitch. Used mainly when changing pitch in the middle of a line. The alternate pitch may be defined by the user following the instructions in Section 7 of the WordStar Reference Manual.

^PC Causes the printer to stop printing where this command is placed. Used mainly for changing daisy wheel fonts, or possibly the type of ribbon you are using. To resume printing after the printer has stopped, press ^P from the NO-FILE menu.

^PN Changes the printing pitch from alternate pitch back to standard pitch. used mainly when changing pitch in the middle of a line. The standard pitch may be defined by the user following the instructions in Section 7 of the WordStar Reference Manual.

^PY Causes the ribbon color on printers capable of handling dual color ribbons to change from one color to another. The color specified will continue until another ^PY appears in the text to change back to the original color.

User Patches

^PQ(1) Currently not used.
^PW(2) Currently not used.
^PE(3) Currently not used.
^PR(4) Currently not used.

SUMMARY OF DOT COMMANDS

.BP0 Turns bidirectional printing off.

.BP1 Turns bidirectional printing back on. (**defaulted to on**)
This command is not normally used. The only time you should specify this command is if you are using a printer that does not have bidirectional printing capabilities.

.CWn Changes the character width in n/120ths of an inch (e.g., 10/120ths of an inch = 1/12th of an inch per character, or 12 pitch; 12/120ths of an inch = 1/10th of an inch per character, or 10 pitch; etc.). (**default = 10 pitch**)

.FO This is the footer margin, if you want your company's name, or the title of the document printed at the bottom of each page, then you would use the .FO command. Another use is if you like to have your page numbers printed with hyphens before and after the number "– 2 –", you could specify the .FO command and then type "–#–" at the column where you want your page number to be printed. Some people like to have the footer read "Page n of 15 pages". To do this, use the .FO command and then type "Page # of 15 pages" in the footer line at the column you want that footer to be printed. (**default = page number**)

.HE This is the header margin, it works just like the footer margin except that instead of printing at the bottom of every page, the header is printed at the top of every page. (**default = blank**)

.HMn This is the heading margin. It is used to specify the amount of space between the heading and the first line of text. (**default = 2 lines**)

.IG
or
. . Either of these dot commands may be used to make notes to yourself on the screen, and not have them printed. (e.g., if you think a sentence sounds funny, and you don't have time to read over it now, then you could type something like ".IG This sentence sounds funny."

.LHn This is the line height command. You can change the line height in increments of n/48ths of an inch. (e.g., single space is 8/48ths of an inch, or 1/6th of an inch per line; double space is 16/48ths of an inch, or 1/3rd of an inch per line; 1.5 lines per inch would be 12/48ths of an inch, or 1/4th of an inch per line) other line heights between single and 1.5 can also be specified. (**default** = 8)

.MBn This is the margin at bottom command. It specifies how many lines are to be between the last line of the text area and bottom of each page. This does not include the page number or footer. (**default = 8 lines**)

.MTn This is the margin at top command. It specifies how many lines are to be between the top of the page and the first line of text. This does not include the header.
(**default = 3 lines**)

.OP This command omits the printing of page numbers at the bottom of each page. If you place .OP at the beginning of your document, no pages thereafter will contain a page number unless you specify the .PN command explained below.

.PA This is the page break command. You may use this command to start a new page. It will automatically form feed the paper to the beginning of the next page regardless of how many lines that page has.

.PCn This is the page column command. It is used to specify what column you would like your page number printed at. (e.g., your right margin is set to 70, and you want your page number centered on the page. Then you would type .PC35, half of 70 to tell the computer that you want all of your page numbers printed in column 35.
(**default = column 33**)

.PLn This is the paper length command. It specifies how many lines will fit per page of paper. (e.g., if you wanted to use A4 paper turned sideways, you could not get as many lines per page as you could if it were inserted upright, therefore, you would need to use the .PL command to specify exactly how many lines per page can be printed, again taking into consideration the .MT, .MB, and .LH to figure how many printed lines per page you want.
(**default = 66 lines**)

.PNn This is the page number command. It is used to turn the page numbers back on after they have been omitted using the .OP command, and also for specifying what page number you want printed at the bottom of that page. (e.g., we want to print a five page document starting with page number 1722, then we would put .PN1722 at the top of that page, and every page thereafter would automatically be incremented one). (**default = 1 for first page, incrementing by 1 every page thereafter**)

MAIN MENU

Cursor Movement

^A Left word
^D Right char
^E Up line
^F Right word
^S Left char
^X Down line

Other Menus

^J Help menu
^K Block menu
^O Onscreen menu
^P Print menu
^Q Quick menu

HELP MENU

^B Paragraph reform
^D Dot commands, print controls
^F Flags in right-most column
^H Display and set the help level
^M Margins & tabs
^P Place markers
^R Ruler line
^S Status line
^V Moving text

QUICK MENU

Cursor Movement

^QB Block beginning
^QC End of file
^QD Right end line
^QE Top of screen
^QK Block end
^QP Position before previous command
^QR Beginning of file
^QS Left side screen
^QV Start of last find/replace
^QW Continuous up scroll
^QX Bottom of screen
^QZ Continuous

ONSCREEN MENU

Margins & Tabs

^OF Ruler from line
^OG Paragraph tab
^OI Set tab
^OL Set left margin
^ON Clear tab
^OR Set right margin
^OX Release margins

Line Functions

^OC Center text
^OS Set line spacing

Toggles

^OD Print control display
^OE Soft hyphen entry on/off
^OH Hyphen help on/off
^OJ Justification on/off
^OP Page break display on/off
^OT Ruler line on/off
^OV Vari-Tabs on/off
^OW Word wrap on/off

BLOCK MENU

Saving Files

^KD Save, done edit
^KQ Abandon edit

down scroll
^Q0–9 To marker 0–9

Delete
^QY Delete to end of line
^QDEL Delete to beg. of line

Miscellaneous
^QA Find & replace
^QF Find
^QL Find misspelling
^QQ Repeat command

Block Operations
^KB Mark block beg.
^KC Copy block
^KH Hide/display block
^KK Mark block end.
^KN Column mode on/off
^KV Move block
^KW Write block
^KY Delete block

File Operations
^KE Rename file
^KJ Delete file
^KO Copy file
^KP Print file
^KR Read file

Disk Operations
^KF File directory on/off
^KL Changed logged disk
^KS Save and resume
^KX Save and exit

Place Markers
^K0–9 set/hide place markers

PRINT MENU

Special Effects (begin and end)
^PB Boldface beg./end
^PD Double strike beg./end
^PS Underscore beg./end
^PT Superscript beg./end
^PV Subscript beg./end
^PX Strikeout beg./end

Special Effects (one time each)
^PF Prints
^PG Prints
^PH Overprint next char
^PO Non-break space
^PRETURN Overprint line

Printing Changes
^PA Alternate pitch(12)
^PC Print pause
^PN Standard pitch(10)
^PY Ribbon color changes

User Patches
^PQ(1) Currently not used.
^PW(2) Currently not used.
^PE(3) Currently not used.
^PR(4) Currently not used.

WORDSTAR DOT COMMANDS

.BP Bidirectional print on/off
.UJ Microjustify on/off
.PO Page offset
.CW Character width
.IG or .. Comment (not printed)
.CP Conditional page
.FO Footing
.FM Footing margin
.HE Heading
.HM Heading margin
.LH Line height
.MB Margin at bottom
.MT Margin at top
.PA New page
.OP Omit page number
.PN Page number
.PC Page no. column
.SR Sub/superscript roll
.PL Paper length

CALCSTAR REFERENCE

Cursor Movement

^S Moves cursor to the left one cell
^D Moves cursor to the right one cell
^E Moves cursor up one cell
^X Moves cursor down one cell
^Z Moves cursor to 1st column of next row or first row of next column depending on the ";O" Order Command (default next row)
<tab> Moves cursor to the cell of your choice (default cell A1)

Commands

;A Auto: Automatically moves cursor to first cell with the Auto forms mode set and awaits input of data from user before continuing to next forms (SET) cell. Recalculates all after last cell has been input by user.

;C Copy: Copies data from one cell to another cell or range of cells; also copies from a range of cells to one cell or range of cells. Ranges must be compatible. Also copies formulas asking whether or not you want the formulas to change as their relative coordinates change. If one or more coordinates in a group are not to be changed, they must be immediately followed by an "!". (e.g. A4!+G7) See "!" under the Miscellaneous section.

;D Delete: Allows user to choose deletion of **Entry**, **Row**, **Column**, or **All**. Will cause error message if deleting a row/ col. that is referenced by another cell. If this happens, you must change the formula(s) that reference that cell to the cell that will replace the one deleted.

;E Edge: Moves the cell in which the cursor is currently in to the top left portion of the screen unless some rows or columns are locked, then it moves the current cell to the closest unlocked cell.

;F Format: Allows user to choose formatting options as follows:
W)idth: Specify column width of 1 to 63 chars.
P)recision: Specify precision of a column of numbers from 1 to 10 decimal places.
F)orm Mode: Set/Clear cell toggle for use with the Auto form mode.

;H Help: Help Menu gives brief explanation and command summary list of available commands.

;I Insert: Allows user to choose insertion of:

R)ow: Inserts a row into a matrix changing formulas where necessary.

C)olumn: Inserts a column into a matrix changing formulas where necessary.

;L Load: Prompts user which file to load. Then prompts which coordinate to load at and then loads that file at the specified coordinate erasing all previous data. Make sure the file you are working on has been saved before you load another file.

;M Merge: Similar to the "Load" command except instead of erasing all previous data, it overlays the file to merge with the one currently on the screen, replacing only those cells that are overlayed.

;O Order: Changes the order of calculation from Left-to-Right (L—R) to Top-to-Bottom (T—B). Also changes the direction in which the cursor moves when the RETURN key is pressed. Caution: Depending on the order in which you input your formulas, if the order of recalculation is such that it references a cell that will not be recalculated until after the cell referencing it has been recalculated, your answer may be incorrect. To correct this, change the order of recalculation and then recalculate the results, or perform the recalculation twice in the same order.

;P Print: The Print command offers quite a few options, they are:

To which file? PRINTER

This allows you to print your file directly on the printer, or to a text file on disk for use with WordStars' ^KR (read a file) command to read your array into a financial report, etc., by typing the name of the text file over the words "PRINTER".

Top left corner: A1

This allows you to choose what part of the array to print. A1 will start at the beginning, typing any other coordinate over A1 will cause printing to start at that coordinate and continue to the bottom right corner of your array.

Bottom right corner: M20

This is similar to the above except that it lets you choose the bottom right corner of your array at which to stop printing. The default is preset to the last bottom right cell you have entered information in.

Form length: CONTINUOUS
This specifies the length of the paper you are using. If you choose continuous, your printer will not pause for change between pages. If other than continuous paper is to be used, then type the paper length (in number of single lines) over the words "CONTINUOUS" and press RETURN and the prompt "Stop on each page (y,n)?" will appear, otherwise, the prompt "Printer width: 132" will appear.

Stop on each page (y,n)?
This prompt will only appear if you choose a form length of other than continuous, and will pause after printing each page for you to insert another single sheet of paper if you press "y"; otherwise, it will assume you are using continuous forms paper.

Printer Width: 132
This should say "Paper Width" because it centers your array between column 1 and the width you specify (default 132). If your array is larger than the width you specify, it will be segmented to the nearest column that will completely fit within your specified width, with the 2nd,3rd, etc. segments being carried to the next page(s) for easy pasting. If your array is to be segmented, it will inform you of such. If you are using A4 size paper, change the width from 132 to80 so that it will be centered on that size paper.

Fix ordinates (y,n)?
This will only appear if you specified other than A1 for the "top left corner" prompt. A "y" response will print the heading of each column and then skip to your specified coordinate before continuing its print session. A "n" will only print the portion you asked for without any column titles.

Title>
This prompt lets the user include a centered title at the top of the array and can be as many lines as the page permits. To input a title, just type what you want and press RETURN and, assuming you are printing to the printer, that title will be centered between column 1 and the width you specified above. Then the same prompt will appear again for you to input the next line of your title. To terminate this title prompt just press RETURN without typing any title.

..End of report
Hit Space to continue.
This tells the user that the print session is now complete, so press the space bar to continue editing that array, to load another array, or to quit, etc.

;Q Quit: Allows the user to exit CalcStar. The prompt "Are you sure (y,n)?" will appear in case you pressed this function by accident. Note: Pressing "y" will cause an unsaved program to become irretrievable. An "n" response will allow the user to continue editing the currently displayed file, or to save that file and then quit.

;R Recalc: This forces recalculation in one of 2 ways.

A)ll: Recalculates everything in your array (see the ";O" command).

E)ntry: Recalculates only the entry at the current cursor position.

;S Save: This saves/stores your array on disk, allowing you several options from which to choose; these are:

File name

Allows the user to specify the name (max. 10 characters/letters preceded by an optional disk drive name and colon) under which to save the contents of that array.

Password (<CR>=none)

Allows the user to protect an array by including a password (secret code) that must be given prior to loading, deleting, or accessing that file. Pressing RETURN is equivalent to specifying no password. If a password is typed, it will not be displayed, and upon pressing RETURN, the following prompt will appear.

Again

This prompt will only appear if you enter a password, and ask that you reenter the exact code again to insure you typed it correctly the first time. If it is the same, the next prompt will appear, otherwise, an error message will appear and the save command will be aborted.

P)artial or A)ll

Allows the user to choose whether all or only part of the array is to be saved. If only part is to be saved, the prompts "Top left corner" and "Bottom right corner" will appear for you to specify what portion is to be saved.

File exists.
Destroy old contents
(y,n)?

This will only appear if a file with the name you specified already exists. Answering "y" will destroy the previous contents and store the current file under the specified name. An "n" will abort the "save" command and the user may continue as before.

;W	What:	Tells the user the title of the row and column the cursor is currently in without moving the cursor to the very beginning of the array. (See also the ";=" Lock command).
;G	Goto:	Prompts the user which cell to move the cursor to. The default is A1 but may be replaced by the users' choice. Pressing RETURN, moves the cursor to the specified (or default) cell.
;*	Extend:	Turns the help menu at the top of the screen off, allowing 5 extra lines of your array to be displayed on the screen. With the help menu on you can see 10 lines; with it off, you can see 15 lines.
;=	Lock:	Similar to the ";W" What command except that instead of temporarily showing you the row/col. titles, it permanently locks those titles in view at all times, regardless of where you move the cursor. If you tell the computer to lock more than it can display, you may get the error message CURSOR OFF SCREEN and must unlock everything to continue operation. You have the choice of locking **C**olumns, **R**ows, or **B**oth by placing the cursor in the row(s)/col(s) you want locked and then pressing ";=" and answering with "C, R, or B".
;?	Space:	Shows the amount of storage space still available for entry into your array. The result appears as: **Room for_____ entries.**

Miscellaneous

@	Cursor Position:	Useful when inputting the cursor cell into a formula. Pressing "@" will automatically input the coordinates the cursor is currently at into the formula. Can also be used in the copy command to input the cursors' coordinates.
?	Evaluate:	Similar to a calculator. Used to find the answer to an equation/problem without actually inputting the formula or answer into your array.-
`	Data Toggle:	Toggles the data "type" key from "numeric" to "text". Numeric being numbers, equations, formulas, etc., and "text" being letters, words, names, etc.

! Special Entry and Hold constant: This symbol is used for two different functions:

1) Can be used as a special entry formula. Suppose you wanted to be able to input a list of numbers from a table, but needed those figures to include a 7% increase. You would use the formula "!107%" in a vacant cell, and copy that formula for the length of the values to be input. Then position the cursor in the first cell and input a number. Upon pressing RETURN, the number you input will be increased by 7% and entered at the cursor location.
2) Can also be used in coordinate formulas to keep one or more of several coordinates constant when doing relative copying. (e.g. (A4!+C23/SQRT(B10!)) will keep A4 and SQRT(B10) constant and relatively change the coordinate C23 as it is copied.

<ESC> Cancel: Cancels a command. Depending on which command you cancel, you may or may not have to press RETURN after pressing the <ESC> key to return you to the edit line.

Calculator Functions (Used with ? and in formulas)

+	Addition:	Used to add numbers, formulas, and/or coordinates.
−	Subtraction:	Uset to subtract numbers, formulas, and/or coordinates.
*	Multiplication:	Used to multiply numbers, formulas, and/or coordinates.
/	Division:	Used to divide numbers, formulas, and/or coordinates.
E+	Pos. Exponent:	Used to express positive exponential notation. If a value is too wide to fit within the width of that column, it will automatically be converted to positive exponential notation. (e.g. 1.28E+7=1.28 x 10^7 or 12,800,000)
E−	Neg. Exponent:	Used to express negative exponential notation. If the decimal precision is larger than the column width, it will automatically be converted to negative exponential notation. (e.g. 1,28E−7=1.28 x 10^7 or 0.000,000,128)

System Functions

SUM: Finds the sum of a range of values. Examples:
+SUM(A4>A50) +SUM(A4,B17,C12>C40,D1>H1)
+SUM(A4>A20)*110%

CNT: Finds the total number of items in a range of values. Examples:
+CNT(A4>A50) +CNT(A4,B17,C12>C40,D1>H1)
+CNT(A4>A20)*110%

AVG: Finds the average of a range of values. Examples:
+AVG(A4>A50) +AVG(A4,B17,C12>C40,D1>H1)
+AVG(A4>A20)*110%

MAX: Finds the maximum value in a range of values. Examples:
+MAX(A4>A50) +MAX(A4,B17,C12>C40,D1>H1)
+MAX(A4>A20)*110%

MIN: Finds the minimum value in a range of values. Examples:
+MIN(A4>A50) +MIN(A4,B17,C12>C40,D1>H1)
+MIN(A4>A20)*110%

SQRT: Finds the square root of a number. Examples:
+SQRT(4) +SQRT(A5) +SQRT(A5*4/AVG(C3!))

LOG: Finds the logarithm of a number. Examples:
+LOG(4) +LOG(A5) +LOG(A5*4/AVG(C3!))

LN: Finds the natural logarithm of a number. Examples:
+LN(4) +LN(A5) +LN(A5*4/AVG(C3!))

ABS: Finds the absolute value of a number. Examples:
+ABS(4) +ABS(A5) +ABS(A5*4/AVG(C3!))

EXP: Finds the exponential value of the entry by taking the value of e, 2.7182818, to the power you enter. Examples:
+EXP(2) +EXP(5) +EXP(10)

REGR: Linear regression computes a linear equation from the values in the range of cells specified by the user. Once the regression function has been used, three other functions are available for the user in conjunction with the regression function. Examples:
+REGR(B2>G2,B5) +REGR(A5>A17,48) +REGR(F1>F40,B2)

PROJ: Allows the user to enter a value for an independent variable and then the best estimate for the dependent variable will be calculated and entered at the current cursor location. Examples:
+PROJ(10) +PROJ(1125.48) +PROJ(2000)

DEPD: Allows the user to enter a value for the dependent variable and then the best estimate for the independent variable is calculated and entered at the current cursor location. Examples:
+DEPD(2000) +DEPD(5000) +DEPD(700)

SLOPE: Allows the user to have the system enter the slope of the linear equation computed from the regression function, into the current location. The slope gives you a rough estimate of the correlation between the independent variable and the dependent variable. Note: This type of regression does not pretend to determine cause and effect, but only tells you what kind of correlation there is. Examples of use are: +SLOPE( )

Formatting Commands

/C Center text: Centers text within a column. Can be specified when entering text by preceding the text to be entered with /C. (e.g. /CItem). Can also be specified after text has been input by moving the cursor to that cell, typing /C into the edit line and pressing RETURN. If the width of that column is changed, corrections will be made to keep the text in the center of that column.

/R Right justify text: Same as the center command except that it right justifies text.

/L Left justify text: Same as the center command except that it left justifies text.

/= Repeat next char.: Repeats the character(s) that follow the /= command all the way across the column the cursor is currently in. If the width of that column is changed, appropriate changes are automatically made to continuously repeat all the way across that column.

/P Print form feed: Allows the user the option to decide where to break the form to the next page. Inserting a /P in column A causes the printer to insert a form feed and continue printing at the top of the next page.

\ Comment follows: Allows the user to insert comments into a numerical/ text entry for his own notes, etc. Will not be printed and has no effect on the final results of an equation. This provides an easy way to remember why a certain formula was used.

Conditional Operators

< Less than

> Greater than

= Equal to

<> Not equal to

<= Less than or equal to

>= Greater than or equal to

* Logical AND: The intersection of two values. Both values must be true for the entire expression to be true.

\+ Logical OR: The union of two values. One of the two values needs to be true for the entire expression to be true). This operator has lower precedence than the "+" AND operator.

: Delimiter for conditions in an executable statement

Executable statements:

If the condition is true:

After the first colon (':') the user may enter the statement to be executed if the condition is true. This statement will be executed only if the condition is true. The statement may be a number, a coordinate, a formula involving any combination of both, or a string of characters enclosed in double quotes (e.g. "yes"). If you enter a condition followed by two colons, the value assigned will be zero if the condition is true.

If the condition is false:

After the second colon (':') the user may enter a statement to be executed if the condition is evaluated to be false. This statement is optional and if you don't enter a statement, 0 will be entered if the condition is false. The statement may be a number, a coordinate, a formula involving any combination of both or a string of characters enclosed in double quotes.

Examples:

(A4>30)*(B4>20%I4):100:50

(A4>15)+(B4>2000)+(C5<0)*(C5>200):"NOGOOD":"OK"

CALCSTAR QUICK REFERENCE

Cursor Movement

^S	Left
^D	Right
^E	Up
^X	Down
^Z	Col A next row or Row 1 next col
<tab>	Goto

Commands

;A	Auto
;C	Copy
;D	Delete
;E	Edge
;F	Format
;H	Help
;I	Insert
;L	Load
;M	Merge
;O	Order
;P	Print
;Q	Quit
;R	Recalc
;S	Save
;W	What
;G	Goto
;*	Extend
;=	Lock
;?	Space

Miscellaneous

@	Cursor Position
?	Evaluate
^	Data Toggle
!	Special Entry and Hold constant
<ESC>	Cancel

System Functions

SUM	Sum values
CNT	Count values
AVG	Average values
MAX	Maximum value
MIN	Minimum value
SQRT	Square root
LOG	Logarithm
LN	Natural logarithm
ABS	Absolute value
EXP	Exponent
REGR	Regression
PROJ	Projection
DEPD	Dependent variable for REGR
SLOPE	Slope of REGR

Formatting Commands

/C	Center text
/R	Right justify text
/L	Left justify text
/=	Repeat next char.
/P	Print form feed
	Comment follows

Conditional Operators

<	Less than
>	Greater than
=	Equal to
<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
*	Logical AND
+	Logical OR
:	Delimiter

Calculator Functions (Used with ? and in formulas)

+	Addition	*	Multiplication
−	Subtraction	/	Division
		E	Exponentation

USING INSTALL.COM

The MicroPro software supplied with your Sanyo MBC System has already been installed to take full advantage of the hardware features of your microcomputer. WordStar, however, needs to be "told" about the printer you are to use in order to be able to access its features.

Your WordStar has been installed for a "PR-5000/5500" printer. If you wish to install your WordStar for other than this type of printer, then follow the procedures below.

1. With both "WS.INS", and "INSTALL.COM" on a disk in drive A:, and the system prompt "A>" displayed on your screen, type "INSTALL" and press the RETURN key. After completing this step, the following will appear on your screen:

GP INSTALL Release 2.00
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Type any key to continue... _

Press the space bar (or for that matter, any key) to continue with the next screen.

With INSTALL you can set up your terminal and printer for use with MicroPro programs. You can also change certain features of the program with INSTALL.

Would you like to continue?
Enter Y or <RETURN> for Yes.
Enter N for No. __

Press "Y" if you wish to continue installing your software and the menu below will appear asking to select the software to install, otherwise, pressing "N" will exit you from the INSTALL program.

Which MicroPro product would you like to Install?
Enter – WS for WordStar
– WM for WordMaster
– DS for DataStar
– RS for ReportStar
then press <RETURN>.

Product? __

With this menu displayed, you must tell the installation program which software you wish to install. In the example below we will use WordStar, so type WS and press return, other choices will display similar menus and prompts pertaining to that particular package.

You will install WordStar for your equipment and needs. The following points will help you use the INSTALL program:

- **You can use the installation manual to answer any questions you may have.**
- **You can also use the WordStar Reference Manual Glossary to better understand unfamiliar terms.**
- **You will have the opportunity to review and accept or reject each item after you select it and again at the end of the program.**
- **If you press unnecessary keys, they will be ignored.**
- **If you need to leave the INSTALL program at any point, press ^C.**

Type any key to continue... __

Again, press the space bar or any other key to continue.

Enter the disk drive name (a letter followed by a colon, B:) where WordStar files will be located while you run INSTALL: then press <RETURN>. __

If you have INSTALL.COM and WS.COM on disk drive A:, just type the letter "A" followed by a colon ":", and press RETURN; otherwise, type the letter of the disk drive (i.e. B, C, D) INSTALL.COM is on, followed by a colon and then press RETURN. If the drive you specify does not contain INSTALL.COM, an error message will appear.

The installed WordStar program is normally contained in WS.COM. If you are reinstalling WordStar or have previously renamed the file, enter the new name below; otherwise press <RETURN>.

Name of file to install, or <RETURN> for WS.COM __

Here, it is assumed that the name of your WordStar file is WS.COM, so just press return, otherwise, give the necessary information (i.e. B:WS1.COM, C:WSOLD.COM) and then press RETURN.

When you are finished running this program, you will have an installed version of WordStar in a new file on the logged disk drive. It will be called A:WS.COM. If you wish to name the file something else, enter the name below. Otherwise press <RETURN>. To change the name, enter up to eight letters or numbers. The extension .COM will automatically be added to any name.

Enter name of file for installed WordStar, or <RETURN> for WS.COM __

Now you must tell the installation program what filename to store your newly installed version of WordStar under. If you wish to keep the original installation, and your own installation, then type a name other than WS.COM or the name you have given your original installation of WordStar, and press RETURN. (Note: It is not necessary to type the extension (.COM) after the filename as this program automatically adds it.

File for installed WordStar is : WS.COM

***** CAUTION *** This file already exists. If you make changes during this INSTALL session and save these changes, you will overwrite this file.**

If this is correct, enter Y or <RETURN>. If not, enter N. __

The "*** CAUTION ***" message above will only appear if you are saving your newly installed version of WordStar ontop of (overwriting) your previously installed version, otherwise the same prompt will appear without the "*** CAUTION ***" message.

You are installing the file WS.COM and producing the file WS.COM.

If this is correct, enter Y or <RETURN>. If not, enter N. _

The prompt above is only a double checking prompt, showing you what you have specified, and asking if this is what you really want. If you specify "Y", the prompt below will appear, and then after a few seconds, the "INSTALLATION MENU" will appear.

INSTALL is copying the file WS.COM

PLEASE WAIT

The message above will be displayed on your screen for several seconds as your computer loads WS.COM into memory. All the changes you make to this installation will be stored in this temporarily copied file until you either abort installation, or save the copy to a command file.

***** INSTALLATION MENU *****

If you are installing a new copy of WordStar, you must select letter A to install your terminal, then letter C to install your printer. If your terminal is not listed on the Menu of Terminals, return to this menu and select letter B. If your printer is not listed on the Menu of Printers, return to this menu and select letter D. If you want to change a particularWordStar feature, choose letter E.

A Menu of Terminals
B Custom Installation of Terminals

C Menu of Printers
D Custom Installation of Printers
E Menu of WordStar Features

X Exit from INSTALL

Enter the letter of your choice (A/B/C/D/E/X). _

The above is a selection menu from which you may install WordStar for a different printer or change some of WordStars defaults. Selection A normally allows you to choose from several standard terminals (computers) and selection B to customize WordStar for your specific terminal. However, since your software has already been installed for you MBC computer, you will not need either of these Selections. Selections C and D are similar to A and B except that they install WordStar for your specific printer. Selection E allows you to change some of WordStar's defaults (i.e. help level, left margin, right margin, page offset, etc.). Selection X exits you from INSTALL.COM.
To, for example, install WordStar for the "SANYO PR-5500" Daisy Printer, press selection C (Menu of Printers) and the printer types below will be displayed on your screen.

Printer is currently : **Sanyo PR-5000/5500**

******* STANDARD PRINTER TYPES *******

Select the letter of your printer from the list below.
This is menu #1 of 2; to view another menu press the appropriate number.

A -standard printer-
B Sanyo PR-5000/5500
C C. Itoh/TEC Starwriter/F10
D Centronics 353
E Centronics 739
F Diablo 630
G Diablo/Xerox 1610/1620
H diablo/Xerox 1640/1650
I Epson MX80/100-no Graftrax
J IBM Parallel printer
K MPI 88G/99G
L NEC 8023A matrix printer

Enter the letter of your choice,
or enter the appropriate menu number,
or press <RETURN> to leave unchanged. _

As mentioned above, we will be installing WordStar to work with the SANYO PR-5000/5500 printer, so type B, or if you have a different printer, type the selection of your printer. Note: if your printer is not displayed on this menu, type 2 and a second printer menu will appear, typing 1 will return you to the currently displayed menu. If your printer is not listed on either menu, then you must custom install WordStar for your printer, referring to your printer manual for the relevant specifications.
One or more of the following prompts may differ depending on your printer selection.

******* INSTALLATION MENU *******

If you are installing a new copy of WordStar, you must select letter A to install your terminal, then letter C to install your printer. If your terminal is not listed on the Menu of Terminals, return to this menu and select letter B. If your printer is not listed on the Menu of Printers, return to this menu and select letter D. If you want to change a particular WordStar feature, choose letter E.

A Menu of Terminals
B Custom Installation of Terminals

C Menu of Printers
D Custom Installation of Printers

E Menu of WordStar Features

X Exit from INSTALL

Enter the letter of your choice (A/B/C/D/E/X). _

Once you have completed the driver device assignment section, you will again be returned to the INSTALLATION MENU to further install/modify WordStar, or to exit INSTALL and either save or abandon your modifications.

The changes made during this session of INSTALL are stored in a temporary file. You may now save these changes in your installed file A:WS.COM.

These are your current values:

Terminal	**: MBC-XXX mm/dd/yy**
Printer	**: Sanyo PR-5000/5500**
Communications protocol	**: No protocol**
Driver	**: Parallel printer driver**

******* EXIT OPTIONS MENU *******

A Save the changes made during this INSTALL session
B Quit this session of INSTALL without saving changes
C Change any of your choices / Remain in INSTALL

Enter the letter of your choice (A/B/C). _

The above menu shows you what selections you have made for your terminal, printer, communications protocol, and driver. If these selections are correct, type A and your changes will be saved to the file you specified earlier in this session. If you wish to abandon all changes made so far, press B, otherwise, press C to continue modification of your choice.

Your new installed WordStar file is A:WS.COM.

You are returning to the operating system.

A>

Upon exiting from the INSTALL program (typing A from the exit options menu), the two lines above will be displayed telling you that your newly installed WordStar is being saved to the file you specified, along with another message telling you that you are returning to the operating system. Once you have returned to the operating system (indicated by the A> being displayed on your screen) you may immediately use your newly installed WordStar file.

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WordStar®
Training Guide

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This document was initially typed, corrected, and edited using WordStar word processing.

Welcome to Wordstar

You are about to learn a system that will make typing much easier and more enjoyable for you. This guide will lead you step by step through all the basic procedures. In no more than two work days, you will get to practice every major feature of WordStar. (You may want to spread the two days over a week or so, rather than take this course all at once.)

This guide is divided into three parts:

- Short Course (Lessons 1-6)
- Intermediate Course (Lessons 7-12)
- Extended Course (Lessons 13-20)

If you plan to type ordinary letters, you may find all you need in the Short Course, which should take you about three or four hours to complete. If your typing tasks involve formatted pages, tables, scientific symbols, special headings, searching, or extensive rearranging of text, take the Intermediate Course (about four or five more hours). The Extended course (about another seven or eight hours) covers WordStar's many features for print formatting, especially in longer documents; MailMerge's ability to merge text, chain-print, and produce form letters; and SpellStar's aid in finding and correcting misspellings and typos in text files.

Since the lessons follow a certain order, you will have to complete them in sequence. You can go through the exercises very quickly if you wish. Or you can take time to repeat them if you need more practice. Just remember that many lessons require prior completion of earlier lessons in the guide.

There are about 50,000 different Chinese characters. But it has been said that with a knowledge of only 1,200 of them, you could read 95% of all Chinese writing. WordStar is nowhere near as difficult as Chinese, but it's the same idea: Even though there are a lot of WordStar features, you don't need to know all of them to be able to use WordStar.

Anything new seems unfamiliar at first, so it may take time to get used to the way WordStar works. But once you do, you will be happy to find how much simpler your work has become.

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Lesson 20	Dictionary Maintenance (SpellStar Option Only)
	Conclusion

- You can see the text you have typed on the video screen just the way you entered it.
- Screen displays above your text give you information about your present location in the document, your margins and tabs, which keys to use for different tasks, and provide various other aids.

Word Processing Methods

Even though you will be using a keyboard that looks very much like a typewriter keyboard, there are some major differences between typing on a typewriter and using WordStar. To begin with, the words you enter using WordStar are not immediately printed on paper. First, they are stored in the computer's memory (what you see on the screen is an image from one small segment of computer memory). Then, after you have completed your document, you save it on one of your diskettes. Finally, after you have decided to print your document, you print it from your diskette.

Storing Text

Before you can enter text using WordStar, you have to create a file for storing the text. (If you plan to enter ordinary text, it will be a **document** file; if you plan to enter a data file or a computer program, it will be a non-document file.) You can think of this file as similar to a cabinet file, in that you can store in it any amount of information up to the limits of the system. Anything you store, you can later retrieve, and either add to or take from.

When you create a file, you must give it a name. And you must remember the exact name you give your file so you can go back to it again later. Any time you decide to make changes to your file or to print it, WordStar will ask you for the file's name. If you forget the name of your file, you can always look at the directory on the screen to find it again.

Naming Files

Here are some examples of file names you can use:

NEWSALES	Newsales	newsales	(equivalent)
LIST/497	List/497	list/497	(equivalent)
LETTER04	Letter04	letter04	(equivalent)

A file name may contain from one to eight characters, including letters, numbers, and some special characters (colons, periods, question marks, and asterisks are not allowed). WordStar makes no distinction between upper and lower case letters of the alphabet. That's why "Z" and "z," for example, are equivalent file names.

If you need to give more information about the file, you can also add a period and three more characters to the end of the name. Some examples are .TXT (for text) and .DOC (for document):

NEWSALES.TXT	Newsales.Txt	newsales.txt	(equiv)
LIST/497.DOC	List/497.Doc	list/497.doc	(equiv)
LETTER04.LTR	Letter04.Ltr	letter04.ltr	(equiv)

BAK Files

Any time you finish a typing job under WordStar, you have to save your typing (store it in a file). And whenever you save your typing, WordStar creates for you another file to back up your current file. This other file, called the .BAK file, contains the last version of your file, and ends in .BAK. For example, if you had a file named LETTER04 (or LETTER04.LTR), WordStar would call its .BAK file LETTER04.BAK.

If you should somehow lose a file, you can always restore it from your .BAK file. This is the purpose of the .BAK file—to back you up if something goes wrong. (Once again, the .BAK file will contain everything but your most recent changes). You will learn how to restore a lost file in Lesson 12.

Learning as You Go

If you don't understand some of the things discussed above or in Lesson 1, it doesn't make any difference. How WordStar works, how a computer works, how text can be stored on a little piece of plastic—these are things you don't even have to think about. The discussions here are just to give you a rough idea of what is going on when you start typing. Whatever you need to know, you will learn through practice at the keyboard.

Another thing: If you feel uneasy about the thought of dealing with a computer, you don't have to. Going from a typewriter to a computer is probably no more challenging than going from a bicycle to a car. The car has more switches, dials, and lights than the bicycle, and there's more to learn. But the car will take you where you're going a lot faster, especially if it's very far away. You can make mistakes on a computer, but (as long as you don't pick it up and hurl it out the window) there's no way you can damage it. So put yourself at ease and start enjoying all the conveniences your computer is bringing to you.

Short Course

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The Screen
Diskettes and Disk Drives
The Logged Disk Drive
The Printer

2 Some Basics

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Starting WordStar
Stopping WordStar
Stopping Your Computer

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3 Typing a Letter

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Lesson 1
Getting acquainted with the equipment

In this lesson you are going to become familiar with your computer and the equipment connected to it.

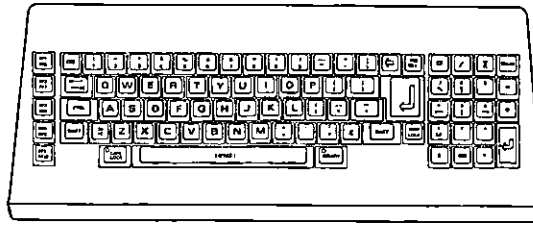
The Keyboard

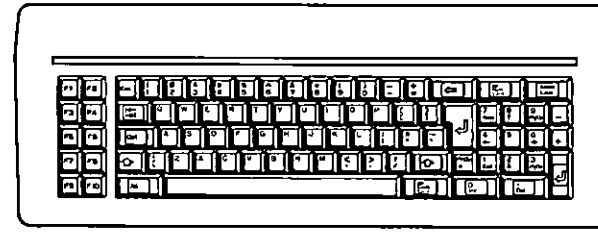
The keyboard for your computer probably looks a lot like the keyboard of your typewriter. The keys for letters and numbers are in the same locations and look the same. But there are a few other keys that you may not have seen before. A typical keyboard with these keys is shown below. Your own keyboard may be a little different.

Take a look at your own keyboard and find where the following keys are located: RETURN, SHIFT, CTRL (CONTROL), and ESC (ESCAPE). You will be using these keys fairly often, so take a moment to locate them now. (On some keyboards, the RETURN key may be called ENTER or NEW LINE.)

The Screen

The typing you do at your keyboard will appear first on a video screen, not on a sheet of paper. But unlike a sheet of paper, your screen will give you helpful information. For example, after you start typing, it will tell you the name of your file,





Typical Keyboards

your current page, line, and column in the file, and prompts to help you along.

In the next lesson you will get your first chance to look at an actual screen display. For now, it should be enough to mention that the screen shows you information displays, error messages, and the text you are typing. To help you find your place, you will find a special character called the cursor at the location on the screen where you will type next.

Diskettes and Disk Drives

All your files will be stored on diskettes, including text files and any data files you may require. For that matter, WordStar's program files are also stored on a diskette. A disk file can hold either text, data, or a computer program. You can have WordStar's files and your typing files together on the same diskette, or you can have WordStar's files on one diskette and your typing files on another. Make sure you ask someone how the files are stored for your system. One typical set-up would be for you to have one WordStar disk, one working disk, and several backup disks kept on a shelf for emergencies. (The more you work with computers, the more you will learn to value backup disks.)

When you insert a diskette into one of those slots, you are placing it under the control of one of the system's disk drives. The disk drive actually spins the diskette at high speed, somewhat the way a record player spins a record. While the diskette is spinning, the system can either read files from it or write files onto it. (But you don't have to be concerned about this— it's all automatic.)

Be careful never to insert or remove a diskette while WordStar is busy. Make sure WordStar has completed an operation entirely, then deal with the diskette. You will be able to tell by looking at the screen. Whenever WordStar is in the middle of a task, it gives you a message to let you know (WAIT, COPYING . . ., SAVING . . . , and so on). Just wait until the message leaves the screen before doing anything with the diskette. Also, never turn off your computer while a diskette is engaged.

Whenever you are going to be away from your terminal for more than a few minutes, make sure Wordstar is idle, then remove your diskettes and return them to their protective envelopes. Never leave them unattended in the disk drives for very long.

Care of Diskettes

The diskettes that you will be using to store typing require special care in handling. If you aren't careful with them, you risk losing the information stored on them. Always follow these rules:

- Keep them in their protective envelopes any time you aren't using them.
- Avoid bending them.
- Insert them into disk drives carefully.
- Don't touch the area of the diskette that is exposed through the window of the envelope.
- Don't expose them to temperature extremes or magnetism.

The Logged Disk Drive

Each disk drive has a one-letter name, followed by a colon. If your system has two disk drives, they will probably be called A: and B:; if it has four, the other two will probably be called C: and D:. When you start up WordStar, the computer will read the program into its memory from drive A:. Disk drive A: is said to be the logged disk drive, the one the computer is

currently looking at. (You can tell by the A prompt that appears just before you ask for WordStar. A means A: is logged.)

If you want to ask for a file that is not stored on the logged disk, you have to type the name of the drive in front of the file name (e.g., B:TEXTFILE instead of TEXTFILE). To avoid this inconvenience, you can change the logged disk drive. The simple procedure is given in the next lesson.

The Printer

When you type on a typewriter, a paper copy is produced at the same time you are typing. When you use a word processing system like WordStar, printing a paper copy is a separate task from typing at the keyboard. With WordStar you first type your text at the keyboard, next store your text on a diskette, and then print a paper copy on a printer. This printer must be connected to your computer and turned on, with its paper loaded and adjusted, before you can print your document. Ask someone to show you how to load the paper, adjust it in the platen, and change ribbons before you start printing anything.

NOTES

Lesson 2
Some basics

In this lesson, you will learn how to start and stop your computer, and how to start and stop WordStar. You will also learn how WordStar helps you when you need information.

Starting Your Computer

The following are the approximate steps you must take to start up your computer. The steps are not the same for all machines, so there may be some differences between the steps shown here and the steps required for your computer.

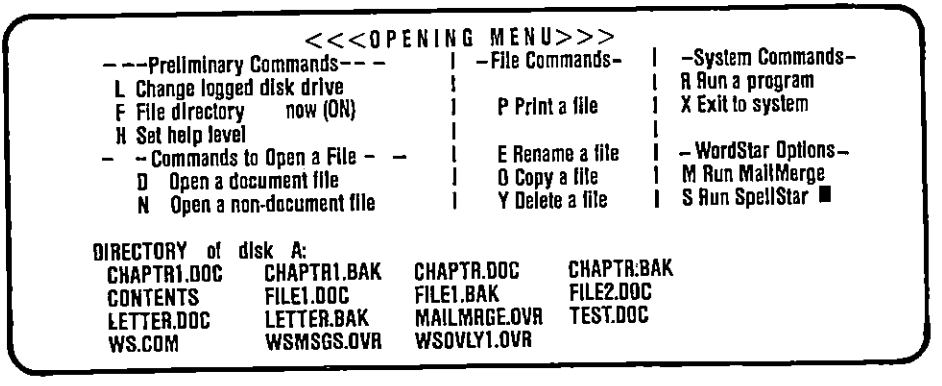
1. Turn on the start switch (or turn the start key).
2. Press the RESET button (not all machines require this step).
3. Press the space bar (not all machines require this step).
4. Insert your diskettes:
   a. Insert the WordStar diskette (a boot diskette containing an installed WordStar) into the first drive (usually called drive a:).
   b. Insert your work diskette into the second drive (usually called drive b:) if required.
5. "Boot" or "Reset" your computer, according to instructions from that machine's reference manual or instructions from someone familiar with the procedure.

Take a moment right now to learn the exact procedures for your machine, and write them down for reference. Later you will type them using WordStar.

Starting WordStar

Now start WordStar by following these steps:

1. After the screen prompt A>, type ws (for WordStar) and press RETURN. (With some systems, you may type something a little different.)
   a. First you will see the MicroPro copyright message for a few seconds.
   b. Then you will see a list of commands entitled " Opening " menu with a directory under it. This is about how your screen should look:



2. If required, type L to request to change the logged disk drive. (This will be required if the WordStar programs are on one disk and your document files are on another.)
   a. When the prompt NEW LOGGED DISK DRIVE (letter, colon, RETURN)? appears, type b: and press RETURN. (In some cases, you may type c: or d:.)
   b. The " Opening " menu will return with the same list of commands (but a different directory).
3. This time press D to "create or edit a Document file" (the explanation is in the upper left-hand corner).
4. When the prompt NAME OF FILE TO EDIT? appears, type the name of your file (say Practice) and press RETURN.

Stopping WordStar

After you have finished typing (for now, a few lines for practice should be enough), you can stop WordStar as follows:

1. While holding down the CTRL key with one finger, type KD with another. This will save your document file and return you to the " Opening " menu.
2. When the " Opening " menu appears, press X.

WordStar will stop and you will see B (or something similar) somewhere on the screen. This means that the operating system is now running. Your operating system allows you to copy files, delete files, and check your work space. See the manual on your operating system to learn how to perform these functions.

To return to WordStar from your operating system, see "Starting WordStar" earlier in this lesson.

Stopping Your Computer

If you plan to be away from the machine for a while, you may want to turn the computer off completely. Here is how to do this:

1. When the B> prompt appears, release each of the diskettes. (Never leave diskettes running in the machine while you are away.)
2. Store the diskettes in a safe place until you are ready to return to your machine.
3. If appropriate, turn off the switch (or key) on your machine. (This may not be good for some machines, so check with your supervisor before doing this.)

Help from WordStar

Whenever WordStar is running, you will never be lost for long. If you don't remember which key to push, WordStar will remind you. For example, as soon as you enter WordStar, the "Opening" display is there to tell you which keys you can push. (By the way, if you push the wrong one, the worst thing that can happen is that you will get something different from what you were expecting.)

Right now let's take a quick look at the other menus that WordStar displays for you. To see these menus, you will have to start WordStar and create a document file:

1. With the "Opening" menu on the screen, press D to create a document file.
2. When the prompt NAME OF FILE TO EDIT? appears, type Practice and press RETURN.
3. After several messages come and go on the screen (WAIT, NEW FILE), the lower half of the screen will be cleared and the new file will be ready. This is how the screen should look:

```
B:PRACTICE       PAGE 1 LINE 1 COL 1              INSERT ON
                 <<<      MAIN MENU      >>>
 --Cursor Movement--  | -Delete-  |  -Miscellaneous-  | -Other Menus-
^S char left   ^D char right | ^G char  | ^I Tab   <B Reform | (from Main only)
^A word left   ^F word right | DEL chr if | ^V Insert On or Off | ^J Help  ^K Block
^E line up     ^X line down  | ^T word rt | ^L Find/Replce again | ^Q Quick  ^P Print
-      -Scrolling-     -     | ^Y line  | RETURN End paragraph | ^O Onscreen
^W up line     ^Z down line  |          | ^N Insert a RETURN   |
^R up screen   ^C down screen|          | ^U Stop a command    |
L----!----!----!----!----!----!----!----!----!----!----!----!-----R
```

The Main Menu

a. The very top line is called the **status line** and tells you the name of your document (B:PRACTICE, file "Practice" on disk drive B:), your current page, line, and column number, and other information (INSERT ON is one example).

b. The next eight lines give the Main Menu itself. (All you need to do now is just glance over it.)

c. The tenth line of the display, with L on the left and R on the right, is called the **ruler line.** This tells you where your margins and tabs are currently set:

   (1) L marks the left margin.

   (2) R marks the right margin.

   (3) Each ! marks a regular tab setting.

   (4) Each # marks a decimal tab setting.

4. While holding down the CTRL key with one finger, type J to see the Help Menu. (Just remember, J stands for help. Note: This is a joke; there is no J in "help.")

   a. When the Help Menu appears, look it over, then press R to read about the ruler line.

   b. After taking a look, press the space bar to return to the Main Menu.

5. While holding down the CTRL key with one finger, type Q to see the Quick Menu. (Press the space bar when you are ready to return to the Main Menu.)

6. Repeat Step 5 with the other letters to see the rest of the menus:
   a. K — Block Menu
   b. O — Onscreen Formatting Menu
   c. P — Print Menu
7. While holding the CTRL key with one finger, type KQ with another to release and discard the file.

Any time you push one of these keys to begin a WordStar function, if you wait a few moments, the menu will appear to help you.

Help Levels

You also have a choice in how much help you want WordStar to give you:

- All the help I can get (level 3).
- A lot of help (level 2).
- A little help (level 1).
- No help (level 0).

When you first start WordStar, you get help level 3 automatically. You will probably want to stay with level 3 through this entire course. However, at the end of the booklet, we'll talk about how you can switch to a lower help level when you're ready. Less help usually means more screen area to work with.

Selecting a WordStar Function

If you want to select a function on a typewriter (set a margin, clear a tab, and so on), there is usually one key designated for the function. With WordStar, you select some functions with a single keystroke, just the way you would select a typewriter function. (With WordStar, it will be a letter key like D, rather than a special function key like TAB.) Other functions you select by pressing a combination of keys.

There are also a number of functions related to printing that you select by a third method. This method will be described in the Extended Course (Lessons 13-18).

Recovering from Errors

Suppose you select a WordStar function and then find that you actually wanted another function. WordStar allows you to interrupt the undesired function in the following way:

1. While holding down the CTRL key with one finger, press U with another.
2. When you see the screen prompt "**** INTERRUPTED *** Press ESC Key," press the ESCAPE key (often labeled ESC).
3. Now you are free to select another function.

Suppose you open a file and discover that it isn't the file you wanted. Or suppose you open the right file, but make some mistakes that are so hard to correct that it would be easier to start from the beginning. In either case, WordStar allows you to abandon the file and make another selection:

1. While holding down the CTRL key with one finger, type KQ with your other fingers.
2. If you have done any typing or made any changes in the file, the following message will appear on the screen: ABANDON EDITED VERSION OF FILE [filename]? (Y/N):
   a. Type Y if you are sure you want to abandon the file and there is no reason to save it.
   b. Type N if you change your mind and decide to save the file after all.
3. The file you had open will be abandoned and you are now free to open another file (or the same one again).

Lesson 3
Typing a letter

In this lesson you are going to type a business letter using WordStar and then print the letter on the printer that is connected to your computer. Assuming your computer is running, you have inserted the diskettes, and WordStar is running, you are ready to create a document file for the letter.

1. Open a new file named "Letter":
   a. When the "Opening" menu appears, press D to create a document file.
   b. In response to the prompt NAME OF FILE TO EDIT?, type Letter and press RETURN.
   c. There will be a pause while the messages WAIT and NEW FILE appear on the screen.
2. When the status line, main menu, and ruler line appear, you are ready to begin.

Preliminary Adjustments

Ordinarily, you do not have to make any adjustments — you just start typing in the blank space below the ruler line. But this time, to get some practice in using WordStar, you will make three minor adjustments:

1. Change the left margin to column 21:
   a. While holding down the CRTL key with one finger, type OL with another.
   b. When the question LEFT MARGIN COLUMN NUMBER? appears, type 21 and press RETURN.
2. Change the right margin to column 56:
   a. While holding down the CTRL key with one finger, type the letters OR.
   b. When the question RIGHT MARGIN COLUMN NUMBER? appears, type 56 and press RETURN.
3. Turn off justification (alignment of the right margin):
   a. While holding down the CTRL key with one finger, type O to look at the Onscreen Formatting Menu.
   b. You should see "J=Justification off (ON)" in the middle column. If so, hold down CTRL and type J; if not, press the space bar and continue.
   c. Now you should see "J=Justification on (OFF)."

Now the status line, main menu, and ruler line should be back on the screen. This is how the ruler line should look:

```
L----!----!----!----!----!----!----R
```

If it looks like this, go on to the next section; if it doesn't, repeat steps 1 and 2 very carefully until it does look like this.

1. While holding down CTRL, press X five times. This will move the cursor down five lines (to the left of "Dear"). (We could also say, "Press CTRL X five times." This is a shorter way of saying it.)
2. Press CTRL F twice to move the cursor across one word to the m in "mr."
3. Press CTRL V to turn off automatic insertion. (Make sure INSERT ON disappears from the upper right-hand corner.)
4. Type an uppercase M (or SHIFT M) over the lowercase m to change "mr." to "Mr."

Let's take a moment now to see how you've done so far. The first eight lines of the letter should look like this:

July 22, 1981

Bill Somers, President
Beauty, Inc.
485 Avenida de las Guapas
Los Angeles, California 90036

Dear Mr. Somers:

If your letter looks just like this, wonderful! Go on to the next section ("Correcting 'should'"). If it doesn't, you have nothing to be ashamed of. Just give it another try. Here's how:

1. If you were fairly close, try turning back to the section called "Correcting 'july'" and going back over the steps very carefully.
2. If you are not very close and would like to start all over again, hold down the CTRL key and type KQ. Now you can turn back to the beginning of this lesson and forget about your mistakes.

Correcting "should"

Your next task is to replace "should" in line 13 with "must":

1. Press CTRL X five times to move the cursor from "Mr. Somers" five lines down (to the left of "should").
2. Press CTRL F to move the cursor across to the s in "should."
3. Type must over the word "should". Now you have must ld", with the cursor over the l.
4. Press CTRL T to delete "ld." Notice how the rest of the line moves left two spaces when you press CTRL T.

Emphasizing "all"

Now you are going to do something that will place more emphasis on the word "all" in the same line:

1. Press CTRL F twice to move the cursor across one word to the a in "all."
2. Press CTRL V to turn automatic insertion back on. (Make sure you see INSERT ON in the upper right-hand corner of the screen.)
3. Press CTRL PB (that is, hold down the CTRL key with one finger, then type PB with another, without a pause between the P and the B).
   a. You will see the characters ^B inserted in front of the word all. (The characters ^B represent an even shorter way of saying CTRL B.)
   b. Note that in some instances, control characters (like CTRL B) are actually displayed on the screen along with the characters of the text.

4. Press CTRL F (also written ^F) to move the cursor across to the p in "possibilities."
5. Now press CTRL S (or ^S) to move the cursor back to the space between "all" and "possibilities."
6. Press CTRL PB (^P^B) again, but this time with a pause between ^P and ^B.
   a. If you wait long enough (about three seconds), you will see the menu at the top of the screen change.
   b. Then if you look at this menu, you will see B in the middle column, followed by the explanation "Boldface begin/end."
   c. This tells you that by placing a ^B on each side of the word "all," you want WordStar to print "**all**" in boldface type, as you see here.
   d. Note that "**all**" will not appear in boldface on the video screen —only on paper after you have printed this letter.

Correcting a Sentence

Your next task is to change the wording of the sentence in the second paragraph to, "Please call my secretary to set an appointment at your earliest convenience." This involves three changes: deleting the word "with," changing "me" to "my," and moving "my secretary" from the second line to the first. Here are the steps to follow:

1. Delete "with:"
   a Press CTRL X (^X) five times to move the cursor five lines down (to the left of "with").
   b. Press CTRL F (^F) to move the cursor across the screen to the w in "with."
   c. Press CTRL T (^T) to delete "with." Now the cursor is on the m in "me."
2. Change "me" to "my":
   a. Press CTRL D (^D) to move the cursor over one space to the e in "me."
   b. Press CTRL G (^G) to delete the e.
   c. Type y to insert the corrected letter.

Note

This is a second way of replacing one letter with another: deleting the old, then inserting the new. (If you recall, the first way was to shut off automatic insertion and type the new letter over the old letter.)

3. Move "my secretary" from line 18 to line 17:
   a. Set a beginning marker:
      (1) Press CTRL A (^A) to move the cursor back to the m in "my."
      (2) Press CTRL KB (^K^B) to mark the beginning of the text you are about to move. (You will see <B> appear in front of "my.")
   b. Set an ending marker:
      (1) Press CTRL F (^F) twice to move the cursor two words across to the a in "at."
      (2) Press CTRL KK (^K^K) to mark the end of the text you are about to move. (If your screen is so designed, you will see "my secretary" become highlighted on the screen.)

c. Move the text:
   (1) Press CTRL E (^E) to move the cursor up one line.
   (2) Press CTRL A (^A) to move the cursor back to the t in "to."
   (3) Press CTRL KV (^K^V) to move "my secretary" to the space between "call" and "to." Now you have re-worded the sentence.

4. Reform the paragraph:
   a. Press CTRL B (^B) to reform the paragraph.
   b. When the cursor stops on the n in "convenience," press CTRL S (^S) twice to back up two spaces to the v and press the hyphen key (-) to hyphenate the word after "con."

Checking the Results

Now your letter should look like this:

```
July 22, 1981                                                <
                                                             <
Bill Somers, President                                       <
Beauty, Inc.                                                 <
485 Avenida de las Guapas                                    <
Los Angeles, California 90036                                <
                                                             <
Dear Mr. Somers:                                             <

In reference to our conversation
earlier today, I would like to meet
with you as soon as possible. We
must discuss ^Ball^B possibilities of
merging Beauty, Inc. and Heavy
Dealing.                                                     <
                                                             <
Please call my secretary to set an
appointment at your earliest con-
venience.                                                    <
                                                             <
Sincerely,                                                   <
                                                             <
Jim Winters, President                                       <
Heavy Dealing, Inc.                                          <
                                                             <
JW/sl                                                        <
```

If this is your first time on a computer and your letter looks just like this, you've done a very good job. You're on your way to becoming a WordStar superstar! Go on to the next section ("Printing the Letter").

If your letter needs a little more work, try pressing CTRL R (^R) followed by CTRL E (^E) to return to the salutation line and turning back to "Correcting 'should'" in this lesson. Go through the steps again very carefully. Or if your letter needs a lot more work, you may want to start all over by pressing CTRL KQ (^K^Q) and going back to the beginning of the lesson.

By the way, if you're curious about those "chicken scratches" along the right-hand side of the screen, the < symbols tell you where you pressed RETURN, while the blanks tell you where WordStar began a new line for you.

Printing the Letter

Now you are ready to print this letter on your printer. To make it look more attractive, you can have WordStar justify the right margin for you:

1. Press CTRL OJ (^O^J) to turn on justification. After Steps 2 and 3, this will cause the text in the two main paragraphs to be lined up with even margins.
2. Reform the first paragraph:
   a. Press CTRL E (^E) ten times to move the cursor to the first line of the first paragraph ("In reference to . . .").
   b. Press CTRL B (^B) to reform the first paragraph.

Note

You don't have to worry about the "of" that appears to be past the right-hand margin. It will be lined up with the rest of the paragraph when the page is printed.

   c. When you see the cursor stop over the I in "Dealing," press CTRL B (^B) again to tell WordStar not to bother hyphenating this word.
3. Reform the second paragraph:
   a. Press CTRL X (^X) once to move the cursor down to the first line of the second paragraph ("Please call . . .").
   b. Press CTRL B (^B) to reform the second paragraph.
4. Press CTRL KD (^KD) to save a copy of your file. You will see two messages appear on the screen:
   a. WAIT (telling you not to press any keys)
   b. SAVING FILE B:LETTER — assuming "LETTER" is on drive B (telling you what WordStar is doing now).

Note

This is when your file gets transferred to your diskette for storage. Now your file will be much safer in the event that something goes wrong (the power fails, the plug comes loose, etc.).

5. When the " Opening " menu appears, press P to print your file.
   a. Make sure your printer is connected to your computer, loaded with ribbon, and ready to print. You can get help from someone if necessary.
   b. In response to the prompt NAME OF FILE TO PRINT?, type the name of your file Letter and press ESC (ESCAPE).

Now your letter should be printed. If nothing happens, check the most likely possibilities:

- Is the printer plugged in?
- Is the switch turned on?
- Is the cable from the computer connected?
- Is the lid on the printer closed tightly?

If the answer to all these questions is yes, then you should ask someone else for help. The printer may not be working properly.

Lesson 4
Moving the cursor

In Lesson 3 you found that certain keys can be used to move the cursor from one place on the screen to another. In this lesson you are going to take a closer look at all the different ways of moving the cursor.

Moving the Cursor One Position

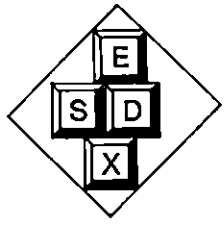
We begin by moving the cursor one position at a time. But first we have to have an open document file to work with. Follow these steps to re-open the file you named Letter:

1. When the " Opening " menu appears on your screen, press D.
2. In response to the prompt NAME OF FILE TO EDIT?, type Letter and press RETURN.
3. Now the status line, the main menu, and the ruler line will appear in the upper half of the screen, with the first fourteen lines of your letter in the lower half. If you turned off the computer after the last chapter, you'll have to reset the ruler line(margins) for the "Letter" file.
4. While holding down the CTRL key with one finger, type C with another (for short, "Press CTRL C"). This will move the cursor down to line 12 (to the left of "with").
5. Press CTRL F five times to move the cursor across to the a in the second "as."

Now that the cursor is located in the middle of a paragraph, you can try moving the cursor around one position at a time:

1. Press CTRL D to move one position to the right.
2. Press CTRL E to move up one position (one line).
3. Press CTRL S to move one position to the left.
4. Press CTRL X to move down one position (one line).
5. Press these keys several more times in any order.

Look at the arrangement of these four keys (D, E, S, and X) on your keyboard. Note that they form an approximate diamond shape. These four keys make up what we call the "cursor control diamond." Any time you hold down the CTRL key and press one of these keys, you move the cursor one position:

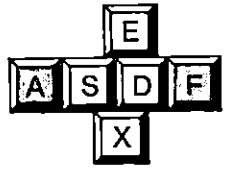


In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss ^Ball^B possibilities of merging Beauty, Inc. and Heavy Dealing.

Moving the Cursor One Word

Return the cursor to the a in "as" and press CTRL F several times. Continue pressing CTRL F until the cursor reaches the end of the paragraph. Now press CTRL A several times. Continue pressing CTRL A until the cursor is back at the beginning of the paragraph.

As you look at your keyboard and the following illustration, you can see that these two keys (A and F) are also part of the "cursor control diamond." These keys move the cursor one word at a time in one direction or the other. As you just noticed, they continue moving from one line of text to another.

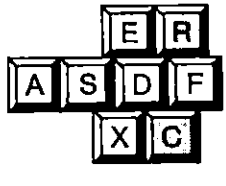


In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss ^Ball^B possibilities of merging Beauty, Inc. and Heavy Dealing.

Moving the Cursor One Screen

If the cursor is still on the I in "In," press CTRL X twice to move it down one line to the w in "with." Now at this location press CTRL R. The cursor should jump all the way up to the J in "July." Now press CTRL C to return. Press CTRL C again to move the cursor down to the J in "Jim Winters."

Looking at your keyboard and the following illustration, you can see that these two keys (R and C) are also part of the "cursor control diamond." These keys move the cursor up or down a distance of one screen. (Actually, it's about three-fourths of one screen—eleven lines of text when fourteen are displayed.)



In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss ^Ball^B possibilities of merging Beauty, Inc. and Heavy Dealing.

Scrolling

At your location near the end of the letter, press CTRL W several times. The cursor will not move (unless it is on the very bottom line of the screen), but the entire display will move down one line for each CTRL W. Now press CTRL Z a few times, and watch the display move up. This is called scrolling.

Looking at your keyboard and the following illustration, you can see that these two keys (W and Z) are also part of the "cursor control diamond." The E, S, X, and D keys make up the "inner diamond," while the W, A, Z, C, F, and R keys make up the "outer diamond."

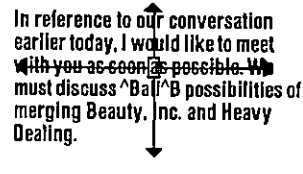
In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss ^Ball^B possibilities of merging Beauty, Inc. and Heavy Dealing.

Moving to the Edges of the Text Area

Using the cursor motion keys you have learned, move the cursor back to the word "as" in "as possible." Now hold down the CTRL key and press QS. (A shorter way of saying it is, "Press CTRL QS.") CTRL Q is the "quick" key, which makes things happen faster. So when you press CTRL QS, the cursor moves quickly to the left side of the screen. Now press CTRL QD, and watch the cursor move to the right margin.

Next, press CTRL QE, and watch the cursor move to the top of the text area. Finally, press CTRL QX (or QX for short), and watch the cursor return.

As you have probably noticed already, the four keys you have been using with CTRL Q (E, S, X, and D) are the four keys of the cursor control diamond. Without CTRL Q, they move the cursor only one position in any of four directions; with CTRL Q, they move the cursor to the edge of the text area in any direction.

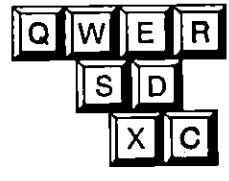

In reference to our conversation
earlier today, I would like to meet
with you as soon as possible. We
must discuss ^Ball^B possibilities of
merging Beauty, Inc. and Heavy
Dealing.

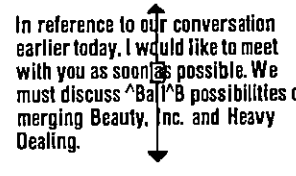
Moving to Either End of Your File

Using the keys you have learned, move the cursor back to the middle of the first paragraph of the letter (to the "as" in "as possible"). Now press CTRL QR (^Q^R), and watch the cursor move up to the first line. Next, press CTRL QC (^Q^ C) and watch the cursor move down to the end of the file.

Once again, these two keys (R and C) are part of the cursor control diamond. Without CTRL Q (^Q), they scroll up or down a distance of one screen (actually, three-quarters of a screen); with CTRL Q (^Q), they move the cursor either up to the beginning of the file or down to the end of the file.

Note that CTRL QR (^Q^R) will move the cursor to the beginning of the file, regardless how large the file. However, if you have a very large file and you want to return to the beginning of the file quickly, press CTRL KS (^K^S) instead. This will save a copy of your file and move the cursor to the beginning much faster than CTRL QR (^Q^R).

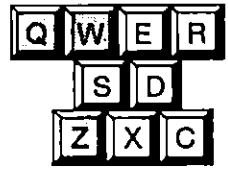


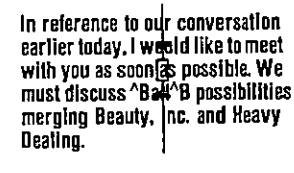

In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss ^Ba ^B possibilities of merging Beauty, nc. and Heavy Dealing.

Continuous Scrolling

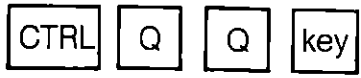
From the current location of the cursor at the end of the file, press CTRL QW (^Q^W), and watch the screen begin scrolling down (while the cursor moves up to stay on the screen). You can stop the scrolling at any time by pressing CTRL Q again or by pressing the space bar. If you press CTRL QZ (^Q^Z), the text will begin scrolling up.

These two keys (W and Z) once again complete the cursor control diamond. Without CTRL Q, these keys scroll only one line either up or down; with CTRL Q, these keys scroll continuously.




In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss ^Ba ^B possibilities of merging Beauty, nc. and Heavy Dealing.

Repeating a Function



WordStar allows you to repeat any function (or any keystroke) many times without having to keep pressing the keys. Since this is a lesson on cursor motion, let's use a cursor motion function as an example:

1. Press CTRL QR (^Q^R) to move the cursor to the beginning of the file.
2. Press CTRL QQF (^Q^Q^F) to start the cursor moving through the text a word at a time.
3. After watching the cursor move for a while, press the space bar to stop it.

You have seen CTRL Q (^Q) used with various other keys to give you various "quick" functions. When you press CTRL Q twice, followed by a third keystroke (CTRL F in the example above), this tells WordStar to keep repeating this keystroke until you press the space bar. Try Steps 2 and 3 again, only use CTRL QQA (^Q^Q^A) in Step 2 this time. This will start moving the cursor backwards a word at a time.

Saving Your File

Early in this guide, you learned that WordStar operates in your computer and that your files are stored on diskettes. About every half hour or so, you should save a copy of the file you are working on. Then WordStar will transfer your most recent changes to diskette, where they will be stored (and where they will be safer). In this lesson you have not really made any changes to your file (Letter), so this will be just for practice.

While holding down the CTRL key, type KD. (Another way of saying this is, "Press CTRL KD." A third way of saying it is, "Press ^K^D.") WordStar will save your file on diskette and return to the "editing no file" menu.

You pressed CTRL KD this time because you were finished with the file. But other times, when you plan to save your file and then make more changes to it, CTRL KS (^K^S) is a little faster.

Again, as a caution, computers rely on electrical power, and electrical power can fail or fluctuate. So protect you files by saving them. Save them often during a typing session, and always save them at the end of a session. Never leave an unsaved file unattended while you are away from the keyboard.

NOTES

Lesson 5
Inserting and deleting text

In Lesson 4 you learned how to move the cursor in any direction either a short distance or a longer distance. In this lesson you will learn how to add to and delete from text you have already typed. First we need a file to work with:

1. When the " Opening " menu appears on your screen, press D to open a document file.
2. Take a moment to look at the information on the screen.
3. In response to the prompt NAME OF FILE TO EDIT?, type Letter and press RETURN.

Inserting a New Paragraph

Now that the file is open, use the cursor motion keys you have learned to move the cursor to the blank line above "Sincerely" near the end of the letter. Now follow these steps:

1. Look at the upper right-hand corner of the screen and make sure you see "INSERT ON" on the status line. If you don't, press CTRL V (^V) to make it appear.
2. Press the RETURN key. Since automatic insertion is on, this will create an extra blank line above "Sincerely."
3. Now type the following additional paragraph exactly the way you see it:

One item 3we have to be sure to cover when we get together is is that plant we have over in Burbank. that plant we have over in Burbank. RETURN

4. Press CTRL KS (^K^S) to save your file.
5. When the text reappears, press CTRL QP (^Q^P) to return to the place where you left off last time.

As you can see, WordStar inserts the text a character at a time while you type. The first RETURN creates a blank line for you to begin typing. With this one blank line as a starting-point, you can type as much text as you like. The RETURN at the end is to create a blank line between the new paragraph and "Sincerely." There are several mistakes in the text to be corrected later. But first you are going to insert more sentences.

Inserting New Sentences

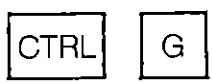
Now press CTRL A to return to the end of the previous line, leave two spaces after the period, and add these sentences to the paragraph you have just typed: "I need to hear what you think about this. Maybe there's more to this than we realized. Keep

in touch." The paragraph should now look like this:

One item 3we have to be sure to cover when we get together is is that plant we have over in Burbank. that plant we have over in Burbank. i need to hear what you think about this. Maybe there's more to this than we realized. Keep in touch.

With WordStar, once you have found your place, there is no difference between adding a character, a word, a sentence, or even more. Just make sure the INSERT ON message is on the screen and start typing.

Deleting a Character

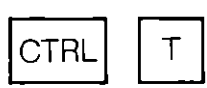


The first mistake we need to correct is the 3 in front of "we" in the first line of the new paragraph:

1. Use the cursor motion keys to position the cursor over the 3 in "3we."
2. Press CTRL G (^G) to delete the 3.

CTRL G (^G) deletes one character at a time. If you want to delete more than just a single character, you can use other keys.

Deleting a Word

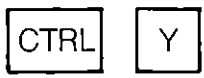


The next mistake to correct is the extra "is" in the second line of the new paragraph:

1. Position the cursor over the i in the first "is."
2. Press CTRL T (^T) to delete the word.

CTRL T (^T) deletes one word at a time. This includes the space that follows the word; it also includes any punctuation that may follow the word.

Deleting a Line

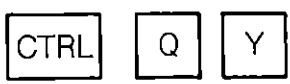


The third mistake to correct is the line that was typed twice:

1. Position the cursor anywhere in one of the extra lines.
2. Press CTRL Y (^Y) to delete the line.

CTRL Y (^Y) deletes one line of text from your file. There are also ways to delete part of a line.

Deleting to the Right



The next correction to make is to delete the sentence, "Maybe there's more to this than we realized." We can't use CTRL Y here because the sentence isn't on a line by itself. So we'll begin with the part on the fifth line of the paragraph:

1. Move the cursor to the M in "Maybe."
2. Press CTRL QY (^Q^Y) to delete "Maybe there's more . . ."

CTRL QY (^Q^Y) deletes from where the cursor is located to the end of the same line (to the right). The character on which the cursor is resting is deleted. As you might have guessed, you can also delete to the left.

Deleting to the Left

CTRL Q DEL

Next, we'll delete the rest of the unwanted sentence, which is on the sixth line of the paragraph:

1. Move the cursor to the K in "Keep."
2. Press CTRL Q DEL (^Q^DEL) to delete "than we realized." (On some keyboards, DEL (DELETE) is called RUBOUT.)

CTRL Q DEL (^Q^DEL) deletes from in front of the cursor to the beginning of the same line (to the left). The character on which the cursor is resting is not deleted. This is how your new paragraph should look now:

> **One item we have to be sure to cover when we get together is that plant we have over in Burbank. I need to hear what you think about this.**
>
> **Keep in touch.**

These deletions have left both margins a little ragged. In a moment, we'll take care of that. Right now we are going to consider ways of inserting and deleting blocks of text that you have already typed.

Copying a Paragraph

CTRL K C

Suppose that after looking at your letter, you discover that you have typed this new paragraph in the wrong location. It really belongs between the other two paragraphs. WordStar allows you to copy the entire paragraph to the new location:

1. Mark the beginning of the paragraph:
   a. Move the cursor to column 1 of the line above your new paragraph (the line above "One item . . .").
   b. Press CTRL KB (^K^B) to mark the beginning of the block of text you are going to copy. (You will see <B> appear in front of the cursor.)
2. Mark the end of the paragraph:
   a. Move the cursor to column 1 of the line below your new paragraph (the line below "Keep in touch.").
   b. Press CTRL KK (^K^K) to mark the end of the block of text you are going to copy. (Either the block will become highlighted or <K> will appear.)
3. Copy the paragraph to the new location:
   a. Move the cursor to column 1 of the line between the other two paragraphs (the line above "Please call . . .").
   b. Press CTRL KC (^K^C) to copy the marked paragraph to the new location.

Deleting a Paragraph

CTRL K Y

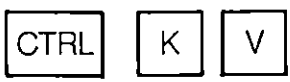
Now you are going to go back and delete the paragraph from the old location:

1. Mark the beginning of the paragraph:
   a. Move the cursor to column 1 of the line above the paragraph (the line above "One item").
   b. Press CTRL KB (^K^B) to mark the beginning of the block of text you are going to delete. (You will see <B> appear in front of the cursor.)

2. Mark the end of the paragraph:
   a. Move the cursor to column 1 of the line below the paragraph (the line below "Keep in touch.").
   b. Press CTRL KK (^K^K) to mark the end of the block of text to be deleted. (Either the block will become highlighted or <K> will appear.)
3. Press CTRL KY (^K^Y) to delete the marked paragraph.

You don't have to copy a block of text from one location to another and then go back to the old location to delete. This has just been for the practice. WordStar has another feature that moves text from one location to another without leaving a copy behind at the old location.

Moving a Paragraph



After looking at your letter for a while, you decide that the new paragraph you've inserted really belongs at the end as a postscript. You can move the paragraph to the end of the letter with one command after marking it:

1. Mark the beginning of the paragraph:
   a. Move the cursor to column 1 of the line above the paragraph (the line above "One item . . .").
   b. Press CTRL KB (^K^B) to mark the beginning of the block of text you are going to move. (You will see <B> appear in front of the cursor.)
2. Mark the end of the paragraph:
   a. Move the cursor to column 1 of the line below the paragraph (the line below "Keep in touch.").
   b. Press CTRL KK (^K^K) to mark the end of the block of text you are going to move. (Either the block will become highlighted or <K> will appear.)
3. Move the paragraph to the new location:
   a. Move the cursor to column 1 of the blank line above the initials (the line above "JW/sl").
   b. Press CTRL KV (^K^V) to move the marked paragraph. (No copy will be left at the previous location.)

Inserting "P.S."

Now for a final touch you can insert "P.S. " in front of the paragraph you just moved:

1. Press CTRL KH (^K^H) to turn off the highlighting (and hide the markers).
2. Move the cursor to the O of "One item . . .".
3. Look at the upper right-hand corner of the screen to check for "INSERT ON." If it isn't there, press CTRL V (^V) to make it appear.
4. Type "P.S. " (with a space after the second period) in front of "One item . . .".
5. Press CTRL B (^B) to reform the paragraph.
6. Press CTRL KD (^K^D) to save your file.
7. Look at the directory for LETTER.BAK, your backup file.

Any time you mess up a paragraph with insertions or deletions, you can tidy it up again by pressing CTRL B (^B). You can press ^B either at the beginning of the paragraph or at any line further down, as long as the cursor precedes the untidy places.

Printing Your File

Just for practice, you can now print your file on your printer:

1. When the " Opening " menu appears, press P. (Make sure the printer is ready and that the paper is lined up at the right position.)
2. When the prompt NAME OF FILE TO PRINT? appears, type Letter and press ESC (ESCAPE). Now your letter will be printed with the new paragraph.

July 22, 1981

Bill Somers, President
Beauty, Inc.
485 Avenida de las Guapas
Los Angeles, California 90036

Dear Mr. Somers:

In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss **all** possibilities of merging Beauty, Inc. and Heavy Dealing.

Please call my secretary to set an appointment at your earliest convenience.

Sincerely,

Jim Winters, President
Heavy Dealing, Inc.

P.S. One item we have to be sure to cover when we get together is that plant we have over in Burbank. I need to hear what you think about this. Keep in touch.

JW/sl

Summary

In this lesson you have learned how to insert a sentence, a paragraph, or any amount of text into your file, using INSERT ON. You have also learned how to delete a character, a word (or part of a word), an entire line, or part of a line:

CTRL G

CTRL Y

CTRL DEL

One item ~~a~~we have to be sure to cover when we get together ~~is~~ is that plant we have over in Burbank. ~~that plant we have over in Burbank.~~ I need to hear what you think about this. ~~Maybe there's more to this than we realized.~~ Keep in touch.

CTRL T

CTRL QY

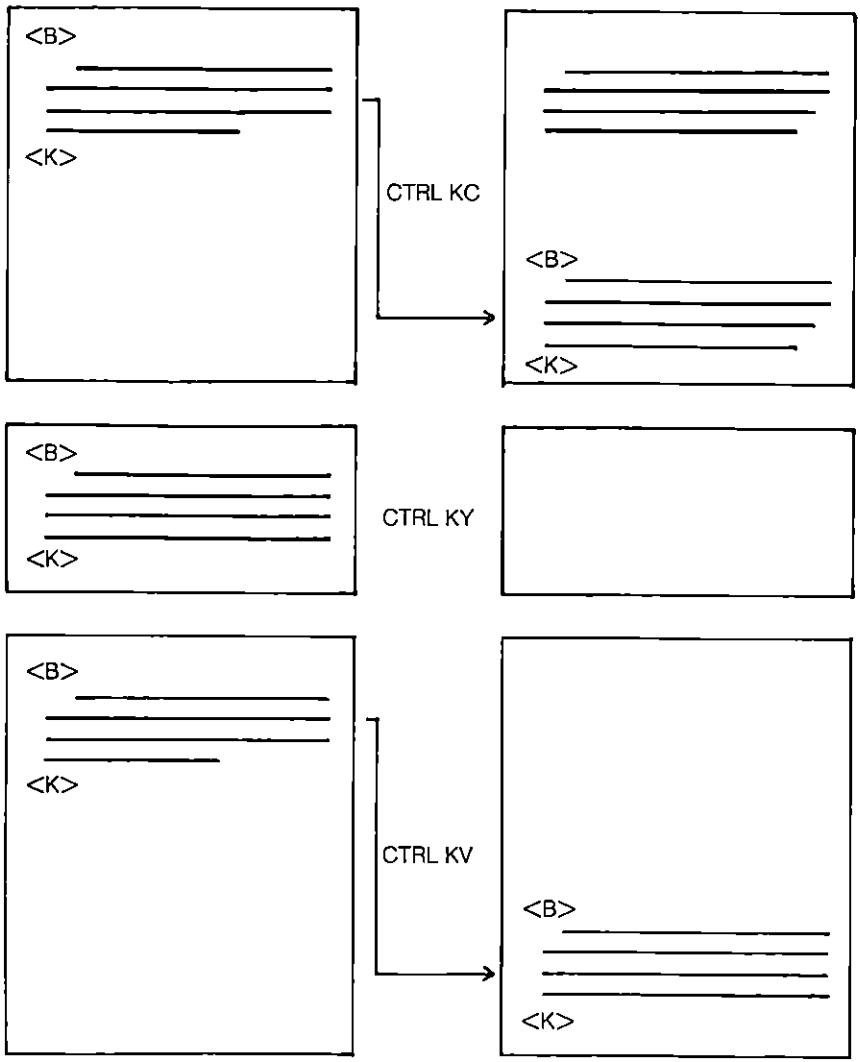
In addition, you have learned how to set markers at each end of a block of text:

<B> (CTRL KB)

One item we have to be sure to cover when we get together is that plant we have over in Burbank. I need to hear what you think about this.

Keep in touch.
<K> (CTRL KK)

Finally, you have learned how to copy, delete, or move a paragraph (or any other block of text that has been marked):


<B>
<K>
CTRL KC
<B>
<K>
<B>
<K>
CTRL KY
<B>
<K>
CTRL KV
<B>
<K>

NOTES

Lesson 6
Forming paragraphs

In this section you will learn how to enter paragraphs correctly, how to split one paragraph into several, and how to merge several paragraphs into one. You will also learn how to select unjustified right margins and how to select double or triple spacing.

First, you will create a new document file and (if you haven't exited from WordStar since Lesson 5) reset the original margins.

1. Create a new file called "Control":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO CREATE OR EDIT? appears, type Control and press RETURN.
   c. First the WAIT and NEW FILE messages will appear on the screen, then the file will be ready.
2. Reset the left margin to column 1 (if necessary):
   a. Press CTRL OL (^O^L) to request a new left margin.
   b. When the question LEFT MARGIN COLUMN NUMBER? appears, type 1 and press RETURN.
3. Reset the right margin to column 65 (if necessary):
   a. Press CTRL OR (^O^R) to request a new right margin.
   b. When the question RIGHT MARGIN COLUMN NUMBER? appears, type 65 and press RETURN.

Typing Separate Paragraphs

Enter the following text exactly as you see it here:

The CTRL key on your keyboard is very similar to the SHIFT key in many ways. First of all, you always press it while you are pressing another key; pressing it by itself doesn't do anything. Like the SHIFT key, the CTRL key changes what happens when you press some other key. And like the SHIFT key, the CTRL key is located near the left side of the key cluster. However, pressing the CTRL key while you are pressing another key does not usually produce a visible character on the screen and never produces a printed character. **RETURN**
RETURN
Instead of saying, "While holding down the CTRL key with one finger, press O with another," we can be briefer by just saying, "Press CTRL O." This is like saying, "Press SHIFT O." The difference is that pressing CTRL O will activate a WordStar function, while pressing SHIFT O will merely display a capital letter O on the screen. If we want to be even briefer still, we can say, "Press O" instead of, "Press CTRL O." **RETURN**

Even though you have already typed this text as two separate paragraphs, WordStar makes it easy for you to change this.

Joining Paragraphs

Just for practice, you will first join the two paragraphs you have typed into one larger paragraph:

1. Move the cursor just past the last word of the first paragraph (to the first blank space past "character."), as follows:
   a. Place the cursor in the left-hand margin of the blank line between the two paragraphs.
   b. Press CTRL A (^A) to move the cursor back up to the end of the previous line.
2. Press the space bar twice to leave room between the two sentences.
3. Press CTRL G (^G) twice.
   a. With the first CTRL G, the blank line between the paragraphs will vanish.
   b. With the second, the first word of the second paragraph will move to the cursor.
4. Press CTRL B (^B) twice to reform the new paragraph.

Splitting a Paragraph

Now you are going to split into smaller paragraphs the larger paragraph you have just formed:

1. Using the cursor control keys you have learned, move the cursor to the H in "However, . . ." in the sixth line.
2. With INSERT ON showing in the upper right-hand corner of the screen, press RETURN twice.
   a. With the first RETURN, "However, . . ." moves to a separate line.
   b. With the second, a blank line appears between the new paragraphs.
3. Press CTRL B (^B) to reform the second paragraph.
4. Repeat Steps 1-3 to form a third paragraph beginning with "Instead of . . ."

Even though you entered this text in block style, there's nothing to keep you from changing that now.

Changing to Indented Paragraphs

WordStar makes it easy for you to change to indented paragraphs after you have already typed them:

1. Move the cursor to the beginning of the first paragraph (the T in "The CTRL key . . .").
2. With INSERT ON showing in the upper right-hand corner of the screen, press CTRL I (^I) to indent the first line of the paragraph to the first tab stop.
3. Press CTRL B (^B) to reform the paragraph.

You will see the cursor stop in the middle of "anything." This is WordStar's way of asking you if you want to hyphenate this word. To hypenate, back the cursor up to the t and press the key (-). Now WordStar will continue reforming.

Hyphenating Words During Reform

Repeat Steps 1-3 for the second two paragraphs. While you are reforming the second paragraph, WordStar will stop to hyphenate "another:"

1. If you don't want to hyphenate "another," just press CTRL B (^B) again. WordStar will move "another" to the next line and go on.
2. If you want to hyphenate "another," use CTRL S (^S) to back up the cursor to the o and press the hyphen key. WordStar will place a hyphen after "an" and then go on to the end of the paragraph.

Just for practice, reform the paragraph twice, once without hyphenation and once with hyphenation. (If you have already reformed with hyphenation, just leave the paragraph that way.) Note that the hyphen may appear highlighted on your screen. The highlighting tells you that this hyphen will be printed only if it falls at the end of a line (which it does right now). If your screen doesn't show highlighting, this is still true.

Rejoining Paragraphs

Now you are going to rejoin the first and second paragraphs:

1. Using the cursor control keys you have learned, move the cursor past the last word in the first paragraph, with two spaces between the period and the cursor. (CTRL F or CTRL A should do this automatically.)
2. Press CTRL G (^G) twice to bring the two paragraphs together.
3. Press CTRL G (^G) five more times to remove the indentation.
4. CTRL B (^B) to reform the new paragraph.
5. Press CTRL KD (^K^D) to save a copy of your file.

Now the text is about the way it was when you first entered it, except that each paragraph begins with an indented line.

Printing Your File

To print your completed file, follow these steps:

1. When you see the " Opening " menu, press P to request printing. (Make sure the printer is ready and the paper is positioned correctly.)
2. When the prompt NAME OF FILE TO BE PRINTED? appears, type Control and press ESCAPE. Your file will be printed on the printer.

Printing Double-Spaced, Unjustified

Just to illustrate some of the choices you have in printing, you will now print the same file with double-spacing and an unjustified right margin:

1. Open the file named "Control:"
   a. When the " Opening " menu appears, press D to open your file again.
   b. When the prompt NAME OF FILE TO CREATE OR EDIT? appears, type CONTROL and press RETURN.
2. Set double-spacing:
   a. Press CTRL OS (^O^S).
   b. When the prompt "ENTER space OR NEW LINE SPACING (1-9): " appears, type 2 (no RETURN required).

c. LINE SPACING 2 will appear in the upper right-hand corner of the screen (on the status line).

3. Turn off justification:
   a. Press CTRL O (^O).
   b. If the menu shows that justification is now ON, press CTRL J (^J) to turn it off.
   c. If the menu shows that justification is already OFF, press the space bar to leave it that way.
   d. The next time you type ^O^J, you will turn justification back on again.
4. Reform the first paragraph:
   a. Leave the cursor at column 1 of the first line of the first paragraph ("The CTRL key . . .").
   b. Press CTRL B (^B) to reform the paragraph.
5. Reform the second paragraph:
   a. Move the cursor down to column 1 of the first line of the second paragraph ("Instead of . . .").
   b. Press CTRL B (^B) to reform the paragraph.
6. Print your file again:
   a. When you see the " Opening " menu, press P to request printing.
   b. When the prompt NAME OF FILE TO BE PRINTED? appears, type Control and press ESCAPE.
   c. The printed result should look like this:

The CTRL key on your keyboard is very similar to the SHIFT key in many ways. First of all, you always press it while you are pressing another key; pressing it by itself doesn't do anything. Like the SHIFT key, the CTRL key changes what happens when you press some other key. And like the SHIFT key, the CTRL key is located near the left side of the key cluster. However, pressing the CTRL key while you are pressing another key does not usually produce a visible character on the screen and never produces a printed character.

Instead of saying, "While holding down the CTRL key with one finger, press O with another," we can be briefer by just saying, "Press CTRL O." This is like saying, "Press SHIFT O." The difference is that pressing CTRL O will activate a WordStar function, while pressing SHIFT O will merely display a capital letter O on the screen. If we want to be even briefer still, we can say, "Press O" instead of, "Press CTRL O."

Line Spacing and Justification

You can set any line spacing from 1 to 9 by pressing ^O^S, and typing a number. When you set a value other than 1 (single-spacing), e.g., 2 (double-spacing), you will see a message in the upper right-hand corner of your screen (LINE SPACING 2). You probably won't have many occasions to use any setting other than 1, 2, or 3 for line spacing.

You can turn off justification of the right margin by pressing ^O^J once. The next time you press ^O^J, you will turn justification back on again. You can always tell whether you have turned justification on or off by looking at the text you are typing. Another way to tell is to press ^O and look at the menu after J (either ON or OFF will appear highlighted). If you don't want to change it, just press the space bar.

If you select double spacing and unjustified right margins before you begin typing, then you will see the text appear with these features on the screen. But if you have already typed the text and then select these features, nothing will happen to your text until you reform each paragraph one at a time. This means that WordStar allows you to change the settings as often as you like, which means, in turn, that you could type each paragraph of your file with different settings for printing.

Any WordStar features you select will remain in effect until you exit from WordStar, even if you switch to a different file.

End of the Short Course

This concludes the Short Course. At this point, you don't know all the features of WordStar, but you know enough to handle most ordinary typing jobs. Here is a quick summary of what you have covered:

Lesson 1. You learned how the keyboard, screen, diskettes, disk drives, and printer work together while you are typing.

Lesson 2. You learned how to start your computer and WordStar, how to stop WordStar and your computer, and how WordStar helps you while you are typing.

Lesson 3. You learned how to create a document file and type a letter. You also learned how to use many WordStar functions for making corrections and how to print the letter.

Lesson 4. You learned how to move the cursor one position, one word, or one screen in either direction. You also learned how to scroll the screen up or down, move the cursor to the edge of the text area, move the cursor to either end of the file, and repeat a keystroke or WordStar function.

Lesson 5. You learned how to insert text with INSERT ON and how to delete a character, a word, a line, or part of a line. You also learned how to copy, delete, or move a block of text.

Lesson 6. You learned how to join two paragraphs together and split one paragraph into two. You also learned how to change block paragraphs to indented paragraphs, how to reform a paragraph, and how to hyphenate words during a paragraph reform. Finally, you learned how to specify line spacing and right-justification.

You have created these files:

PRACTICE (Lesson 2)
LETTER (Lesson 3)
CONTROL (Lesson 6)

If you plan to repeat the Short Course, you can delete these files now, using either WordStar's deletion command or your operating system's deletion command. Here is how to use WordStar's deletion command for the first file (PRACTICE):

1. When the " Opening " menu appears, press Y to delete a file.
2. When the prompt NAME OF FILE TO DELETE? appears, type Practice and press RETURN.

Intermediate Course

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Lesson 7
Margins, tabs, and centering

In this lesson you will learn how to align the text you are typing with tabs, margins, and centering.

First you will need to create a new document file:

1. When the "Opening" menu appears, press D to create a document file.
2. When the prompt NAME OF FILE TO EDIT? appears, type Display and press RETURN.

Now you have a document file called "Display," and you are ready to begin entering text.

Centering Text

CTRL O C

The first word you are going to type is to be the title of this file. So you will want to center this word in the middle of the line:

1. Press RETURN three times to bring the title down from the top of the page.
2. Type "Display" next to the left-hand margin.
3. Press CTRL OC (^O^C) to center "Display." You will see the word shift to the middle of the screen.

Indenting Text

CTRL I

Now you are going to enter several paragraphs of text with indentations included for better appearance:

1. Press RETURN three times to leave two blank lines below the title.
2. Press CTRL I (^I) to move the cursor out to the first tab stop. (You can see the positions of the tabs that WordStar has set for you by looking at the ruler line below the menu. Each exclamation point (!) represents one tab stop.)

3. Now type the following paragraph:

> WordStar displays a lot of information for the beginning user. Besides the display of text in the lower part of the screen, WordStar also displays **RETURN** **RETURN**

4. Press CTRL I (^I) to move the cursor out to the first tab stop and type "o" to represent a **bullet.**
5. Press CTRL I (^I) again to move the cursor to the second tab stop.
6. Press CTRL OG (^O^G) twice to move the left margin temporarily to the second tab stop, then type the following paragraph:

> Status Line. The status line tells you the name of your file (B:DISPLAY), the page, line, and column of the cursor's location in your file, and other information, such as INSERT ON. **RETURN** **RETURN**

7. Repeat Steps 4-6 and type the following paragraph:

> Main Menu. The main menu gives you information about the most common WordStar functions and refers you to five other menus for additional information. **RETURN** **RETURN**

8. Repeat Steps 4-6 and type the following paragraph:

> Ruler Line. The ruler line shows you the margins and tab stops currently in effect. WordStar initially sets the left margin to column 1, the right margin to 65, and tab stops at every fifth column up to 56. **RETURN** **RETURN**

9. Press CTRL KD (^K^D) to save your file.

By pressing CTRL I (^I) one or more times, you can cause a line of text to be indented to one of the tab stops currently set. (But the rest of the lines of the paragraph will not be indented.) By pressing CTRL OG (^O^G) the same number of times, you can temporarily reset the left margin to the same tab stop, which means that the entire paragraph will be indented.

Printing Your File

Now you can print your file by following these steps:

1. When the " Opening " menu appears, press P.
2. Make sure the printer is ready and that the paper is in the correct position.
3. When the prompt NAME OF FILE TO PRINT? appears, type Display, then press ESC (ESCAPE).

When printed, your file should look like this:

Display

WordStar displays a lot of information for the beginning user. Besides the display of text in the lower part of the screen, WordStar also displays

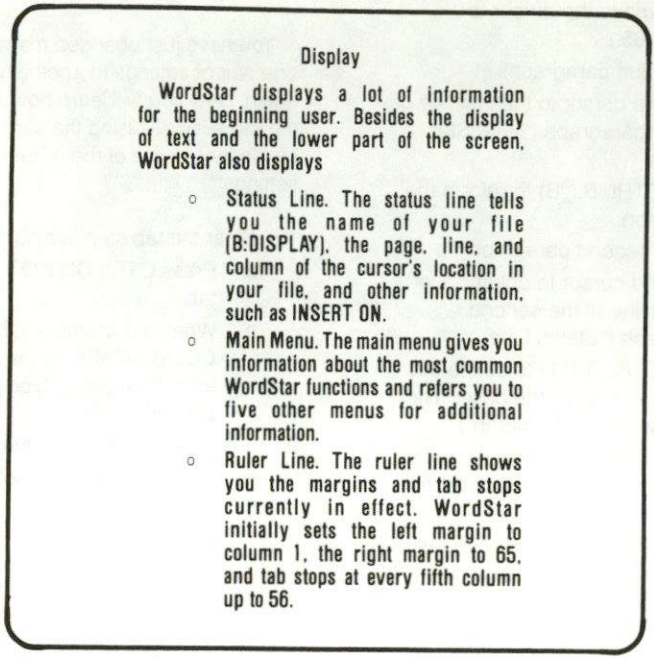
- Status Line. The status line tells you the name of your file (B:DISPLAY), the page, line, and column of the cursor's location in your file, and other information, such as INSERT ON.
- Main Menu. The main menu gives you information about the most common WordStar functions and refers you to five other menus for additional information.
- Ruler Line. The ruler line shows you the margins and tab stops currently in effect. WordStar initially sets the left margin to column 1, the right margin to 65, and tab stops at every fifth column up to 56.

Changing the Margins

To help you become more familiar with margin settings, you are now going to reprint your file with narrower margins:

1. Open file "Display" again:
   a. When the Opening menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Display and press RETURN.
2. Change the left margin to 11:
   a. Press CTRL OL (^O^L) to change the left margin.
   b. When the prompt LEFT COLUMN NUMBER (ESCAPE for cursor column)? appears, type 11 and press RETURN.
3. Change the right margin to 56:
   a. Press CTRL OR (^O^R) to change the right margin.
   b. When the prompt RIGHT COLUMN NUMBER (ESCAPE for cursor column)? appears, type 56 and press RETURN.
4. Reform the first paragraph:
   a. Move the cursor to the first line of the first paragraph ("WordStar displays . . .").
   b. Press CTRL B (^B) to reform the paragraph.
5. Reform the second paragraph:
   a. After making sure INSERT ON is showing in the upper right-hand corner, move the cursor to the start of the second paragraph (to the bullet).
   b. Press CTRL I (^I) twice to push the bullet out to the first tab stop.
   c. Press CTRL F (^F) to move the cursor to the S in "Status Line."
   d. Press CTRL OG (^O^G) twice to reset the left margin temporarily to the second tab stop.
   e. Press CTRL B (^B) to reform the paragraph.
6. Repeat Step 5 for the third and fourth paragraphs, leaving all words unhyphenated.
7. Press CTRL KD (^K^D) to save a copy of your file.

Now your file should look like this:



Display

WordStar displays a lot of information for the beginning user. Besides the display of text and the lower part of the screen, WordStar also displays

- **Status Line. The status line tells you the name of your file (B:DISPLAY), the page, line, and column of the cursor's location in your file, and other information, such as INSERT ON.**
- **Main Menu. The main menu gives you information about the most common WordStar functions and refers you to five other menus for additional information.**
- **Ruler Line. The ruler line shows you the margins and tab stops currently in effect. WordStar initially sets the left margin to column 1, the right margin to 65, and tab stops at every fifth column up to 56.**

To print your file, follow these steps:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type Display and press ESCAPE (ESC).

Restoring the Original Margins

To restore the original margins (column 1 and column 65), using a slightly different procedure, follow these steps:

1. Open file "Display" again:
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Display and press RETURN.
2. Restore the left margin:
   a. With the cursor resting in column 1, press CTRL OL (^O^L) to reset the left margin.
   b. When the prompt LEFT COLUMN NUMBER (ESCAPE for cursor column)? appears, press ESC (ESCAPE) to reset the left margin to column 1. (This is a second way to change a margin, and can be used any time.)
3. Restore the right margin:
   a. Press CTRL OR (^O^R) to reset the right margin.
   b. When the prompt RIGHT COLUMN NUMBER (ESCAPE for cursor column)? appears, enter 65 and press RETURN. (You will not be able to use the ESCAPE

key this time because there is no way to move the cursor to column 65.)

4. Reform the first paragraph:
   a. Move the cursor to the first line of the first paragraph ("WordStar displays . . . ").
   b. Press CTRL B (^B) to reform the paragraph.
5. Reform the second paragraph:
   a. Move the cursor to column 1 of the first line of the second paragraph ("Status Line.").
   b. Press CTRL T (^T) to delete the spaces in front of the bullet. The bullet will jump to column 1.
   c. With INSERT ON showing, press CTRL I (^I) to push the bullet out to the first tab stop.
   d. Press CTRL F (^F) to move the cursor to the S in "Status Line."
   e. Press CTRL OG (^O^G) twice to move the left margin temporarily to the second tab stop.
   f. Press CTRL B (^B) to reform the paragraph.
6. Repeat Step 5 for the third and fourth paragraphs.
7. Press CTRL KS (^K^S) to save your file.

Now the text should look the way it looked when you first entered it. Remember, new margins do not change existing text until you reform your paragraphs. New text that you are just entering is placed within the margins you now see on the screen on the ruler line. With the procedure described above, the text in the bulleted paragraphs will be left-justified with the paragraph title. If you want your paragraphs left-justified with the bullets, press CTRL OG once instead of twice in substep e.

Changing the Tabs

You have just changed margins from one pair of settings to another and back again. Now you will learn how to change the tab settings, using the same file. Begin by clearing some of the current tab settings:

1. Clear the tab stop in column 6:
   a. Press CTRL ON (^O^N) to clear a tab.
   b. When the prompt CLEAR TAB AT COL (ESCAPE for cursor col; A for all)? appears, type 6 and press RETURN.
2. Clear the tab stop in column 11:
   a. Move the cursor to column 11.
   b. Press CTRL ON (^O^N) to clear another tab.
   c. When the prompt CLEAR TAB AT COL (ESCAPE for cursor col; A for all)? appears, press ESC ESCAPE).

Now that you have cleared two of the old tab settings, you are ready to set two new tab settings:

1. Set a tab stop in column 4:
   a. Press CTRL OI (^O^I) to set a tab.
   b. When the prompt SET TAB AT COLUMN (ESCAPE for cursor column)? appears, type 4 and press RETURN.
2. Set a tab stop in column 8:
   a. Move the cursor to column 8 (the status line can help you find the column).
   b. Press CTRL OI (^O^I) to set another tab.
   c. When the prompt SET TAB AT COLUMN (ESCAPE for cursor column)? appears, press ESC (ESCAPE).
3. Look at the ruler line to see the new tab settings.

You have just used two methods for clearing tabs one at a time and the same two methods for setting tabs one at a time. One method is to enter a column number and press RETURN; the other is to position the cursor in the desired column ahead of time and then press ESC (ESCAPE). There is also a method for clearing all tabs at once:

1. Press CTRL ON (^O^N) to clear tabs.
2. When the prompt CLEAR TAB AT COL (ESCAPE for cursor col; A for all)? appears, type A to clear all tabs.
3. Look at the ruler line to see the result.

To restore the tabs again, you will have to restart WordStar:

1. Press CTRL KQ (^K^Q) to abandon the file.
2. When the " Opening " menu appears, press X to stop WordStar.
3. When the operating system's prompt (A> or something similar) appears, type ws (or something similar) and press RETURN to start WordStar again.
4. Look at the ruler line to see the tab settings.

Lesson 8
Typing tables

After learning how to set margins and tabs in Lesson 7, now you are ready to type some tables.

Typing a Simple Table

You will start by typing a simple table. Then you will type a more difficult table.

1. Open a new file called "Tables":
   a. When the " Opening " menu appears, press D to create a document file.
   b. When the prompt NAME OF FILE TO EDIT? apears, type Tables and press RETURN.
2. Type the title of the table:
   a. When your new file is ready, type Table 8-1. Basic Cursor Movement Commands.
   b. Without moving the cursor, press CTRL OC (^O^C) to center the title.
3. Type the table headings:
   a. Press RETURN twice to leave a blank line, then type Command beginning at the left margin.
   b. Press CTRL I (^I) five times to move the cursor to the tab stop in column 31.
   c. Type Description and press RETURN.
4. Type the first table entry:
   a. Press RETURN again to leave a blank line, then type CTRL S beginning at the left margin.
   b. Press CTRL I (^I) once to move the cursor to the next tab stop (column 11).
   c. Press CTRL OG (^O^G) twice to move the left margin temporarily to the tab stop, and type the following description:

Move the cursor back to the previous character, returning to the end of the preceding line if the curser is at the beginning of a line. **RETURN** **RETURN**

5. Follow procedures similar to those given in Step 4 to type the other three items in the table:

CTRL D	Move the cursor ahead of the next character, going to the beginning of the next line if the cursor is at the end of a line. **RETURN**
RETURN	
CTRL E	Move the cursor up to the preceding line, staying in the same column if possible. **RETURN**
RETURN	
CTRL X	Move the cursor down to the next line, staying in the same column if possible. **RETURN**
RETURN	

6. Press CTRL KD (^K^D) to save your file.

This completes the table. Now you can print it on your printer:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type Tables and press ESC (ESCAPE).
3. This is how the table should look:

Table 8-1. Basic Cursor Movement Commands

Command	Description
CTRL S	Move the cursor back to the previous character, returning to the end of the preceding line if the cursor is at the beginning of a line.
CTRL D	Move the cursor ahead to the next character, going to the beginning of the next line if the cursor is at the end of a line.
CTRL E	Move the cursor up to the preceding line, staying in the same column if possible.
CTRL X	Move the cursor down to the next line, staying in the same column if possible.

Typing a Table with Decimal Amounts

Now you are ready to type a table with more columns and some decimal amounts in place of words. First you will need a file to work with:

1. When the "Opening" menu appears, press D to create a document file.
2. When the prompt NAME OF FILE TO EDIT? appears, type Tables and press RETURN. (This is the same file you used for the other table.)
3. When the file appears on the screen, press CTRL QC (^Q^C) to move the cursor to the end of the file.
4. Press RETURN three times to leave a few blank spaces after the other table.

Resetting the Tab Settings

The next step is to reset the tabs for the new table:

1. Clear the old tabs:
   a. Press CTRL ON (^O^N) to clear tabs.
   b. When the prompt CLEAR TAB AT COL (ESCAPE for cursor col; A for all)? appears, type A and press RETURN.
   c. Look at the ruler line to see the result.
2. Set the new ordinary tabs:
   a. Press CTRL OI (^O^I) to set a new tab.
   b. When the prompt SET TAB AT COLUMN (ESCAPE for cursor column)? appears, type 8 and press RETURN.
   c. You have just set a new tab in column 8 (look at the ruler line).
   d. Follow procedures similar to those given in Steps 2a-c to set new tabs at columns 26, 36, 48, and 56.
3. Set the new decimal tabs:
   a. Press CTRL OI (^O^I) to set another new tab.
   b. When the prompt appears, type #39 and press RETURN.
   c. You have just set a decimal tab in column 39 (look at the # in the ruler line).
   d. Follow procedures similar to those given in Steps 3a-c to set decimal tabs in columns 51 and 60.

Typing the Table

Now you are ready to begin typing the table:

1. Type the title of the table:
   a. Type Table 8-2. Parts Orders next to the left margin.
   b. Without moving the cursor, press CTRL OC (^O^C) to center the title.
   c. Press RETURN twice to leave a blank line after the title.
2. Type the table headings:
   a. Beginning at the left margin, type Item.
   b. Press CTRL I (^I) to move to the next tab and type Description.
   c. Repeat steps similar to a and b for the rest of the column headings ("Part," "Price," "Qty," and "Amount").
   d. Press RETURN twice to leave a blank line after the column headings.

At this point, your table should look this:

Table 8-2. Parts Orders

Item	Description	Part	Price	Qty	Amount

Now you can type the body of the table a line at a time:

1. Type 1501.
2. Press CTRL I (^I) to move the cursor to the next tab and type Chair, easy.
3. Press CTRL I (^I) to move to the next tab and type 721C.
4. Press CTRL I (^I) **twice** to move to the first decimal tab and type 249.00 (watch the screen to see what happens).
5. Press CTRL I (^I) twice to move to the next decimal tab and type 7.
6. Press CTRL I (^I) twice to move to the last decimal tab and type 1743.00.
7. Press RETURN twice to leave a blank line.
8. Repeat Steps 1-7 to type the rest of the table:

1502	Table, kitchen	682U	175.00	4	700.00
1503	Sofa, queen size	836L	535.00	19	10165.00
1504	Lamp, table	379H	85.00	24	2040.00
1505	Curio, odd	102Z	1.25	101	126.25

9. Press CTRL KD (^K^D) to save a copy of your file.

Printing the Table

This completes the table. Now you can print it on your printer:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type Tables and press ESC (ESCAPE).
3. The table should appear as shown here.
4. To restore the original tab settings, restart WordStar:
   a. When the " Opening " menu appears, press X to exit from WordStar.
   b. When the operating system's prompt (A> or something similar) appears, type ws (or something similar) and press RETURN.

Ordinary Tabs and Decimal Tabs

WordStar allows you to use two kinds of tab settings when you are typing a table: ordinary tabs and decimal tabs. Use ordinary tabs to align columns of text. (If a column of text takes more than one line, you can also use CTRL OG (^O^G) one or more times to move the left margin temporarily to the tab.) Use decimal tabs to align columns of numbers, whether the numbers actually have decimal points or not.

Table 8-2. Parts Orders

Item	Description	Part	Price	Qty	Amount
1501	Chair, easy	721C	249.00	7	1743.00
1502	Table, kitchen	682U	175.00	4	700.00
1503	Sofa, queen size	836L	535.00	19	10165.00
1504	Lamp, table	379H	85.00	24	2040.00
1505	Curio, odd	102Z	1.25	101	126.25

NOTES

Lesson 9
Creating special effects: Part 1

In this lesson, you will learn how to create a variety of special printing effects, such as boldface, double-striking, underlining, and strikeout. In Lesson 10, you will learn how to type subscripts, superscripts, strikeovers, and non-break spaces. With these features, you will be able to emphasize certain words, type titles of books, print new characters, type mathematical formulas, and so on. These two lessons are designed so that you may skip around. However, for your first time through, the complete text will be required for later lessons.

Before you can begin, you will need a file to work with:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
3. When the file is ready, press CTRL PB (^P^B) followed by RETURN to go to the next line.
4. On the next line, type Special Effects, press CTRL OC (^O^C) to center the title, and press RETURN.
5. On the next line, press CTRL PB (^P^B) then RETURN twice.

Typing Boldface Text

The titles and headings of a book are often printed in **boldface** type. The heading for this section is in boldface; so is the word "boldface" in this paragraph. You just typed the title for your file ("Special Effects") in boldface. Here is an exercise in typing boldface characters:

1. Press CTRL I (^I) to move the cursor to the first tab.
2. Press CTRL PB (^P^B), type Boldface Printing, and press CTRL PB (^P^B) again.

3. Type a period, leave two spaces, and type the following paragraph: "To produce boldface printing, press CTRL PB before and after the desired words. If the words are in a title, you can type the first CTRL PB on the line before the title and the second on the line after the title. If the words are within a paragraph of text, you can type the control characters immediately before and after the words."
4. Press RETURN twice after the last sentence to leave a blank line. What you have typed so far should look like this on the screen:

```
^B
                    Special Effects
^B
   ^BBoldface Printing^B. To produce boldface printing, press CTRL
PB before and after the desired words. If the words are in a
title, you can type the first CTRL PB on the line before the
title and the second on the line after the title. If the words are
within a paragraph of text, you can type the control
characters immediately before and after the words.
```

You can see the four ^Bs that WordStar has inserted into the text. (The word "CTRL" in the first line of text appears to be beyond the right margin because WordStar does not recognize the ^Bs as part of the text.) To see how this will look on paper, print this file on your printer.

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening " menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

Special Effects

Boldface Printing. To produce boldface printing, type CTRL PB before and after the desired words. If the words are in a title, you can type the first CTRL PB on the line before the title and the second on the line after the title. If the words are within a paragraph of text, you can type the control characters immediately before and after the words.

As you can see, the title of the file ("Special Effects") and the paragraph heading ("Boldface Printing") were both printed with thicker, darker letters. This is boldface printing. The special effects you are about to learn are all typed in just about the same way.

Double-Striking

To produce printing in which each character is typed twice for double clarity, you can use double-striking. The characters will be sharper than ordinary characters, but not as thick as boldface characters. Here is an exercise in double-striking words in a paragraph:

1. Reopen the file "Special":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Double-Striking, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type the following paragraph, using CTRL PD (^P^D) to double-strike the phrase "every word in the file": "To produce double-striking, press CTRL PD before and after the desired words. If you want to double-strike every word in the file, place one control character at the beginning of the file and one at the end."
4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

^BDouble-Striking^B. To produce double-striking, press CTRL PD before and after the desired words. If you want to double-strike ^Devery word in the file^D, place one control character at the beginning of the file and one at the end.

WordStar has inserted a ^D before and after the words "every word in the file." To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening " menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

> **Double-Striking.** To produce double-striking, press CTRL PD before and after the desired words. If you want to double-strike every word in the file, place one control character at the beginning of the file and one at the end.

Underlining

In this training guide, underlining is used to indicate items for you to type. For example, "Start WordStar by typing ws after A>." Here is an exercise in typing underlined words.

1. Reopen the file "Special":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Underlining, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type the following paragraph, using CTRL PS (^P^S) to underscore the phrase "continuous underlining": "To produce underlining, press CTRL PS before and after the desired words. If you want continous underlining, make sure you type underscore characters between words. Otherwise, only the words themselves will be underscored and the spaces between the words will be blank."
4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

^BUnderlining^B. To produce underlining, press CTRL PS before and after the desired words. If you want ^Scontinuous underlining^S, make sure you type underscore characters between words. Otherwise, only the words themselves will be underscored and the spaces between the words will be blank.

WordStar has inserted a ^S before and after the words "continuous underlining," but it is up to you to type the underscore character between the words if you want it printed.

To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening " menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

Underlining. To produce underlining, press CTRL PS before and after the desired words. If you want continuous underlining, make sure you type underscore characters between words. Otherwise, only the words themselves will be underscored and the spaces between the words will be blank.

Striking Out Words

CTRL P X

Sometimes you need to show some words or sentences that you are deleting from your text. This is especially common in printing legal documents or the by-laws of an organization. Here is an exercise in striking words from the text:

1. Reopen the file "Special":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Strikeouts, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type the following paragraph, using CTRL PX (^P^X) to strikeout the sentence beginning with "Any obsolete words . . .": "To produce a strikeout, press CTRL PX before and after the desired words. ~~Any obsolete words will then be stricken from the text in the printed copy~~.
4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen.

WordStar has inserted a ^X before and after the second sentence of the paragraph. To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening " menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.

^BStrikeouts^B. To produce a strikeout, press CRTL PX before and after the desired words. ^XAny obsolete words will then be stricken from the text in the printed copy^X.

4. This is how this paragraph should look:

> **Strikeouts.** To produce a strikeout, press CTRL PX before and after the desired words. ~~Any obsolete words will then be stricken from the text in the printed copy~~.

Summary

You have now learned how to type boldface, double-strike, underlining, and strikeouts. This is how the file "Special" should look:

> **Special Effects**
>
> **Boldface Printing.** To produce boldface printing, press CTRL PB before and after the desired words. If the words are in a title, you can type the first CTRL PB on the line before the title and the second on the line after the title. If the words are within a paragraph of text, you can type the control characters immediately before and after the words.
>
> **Double-Striking.** To produce double-striking, press CTRL PD before and after the desired words. If you want to double-strike every word in the file, place one control character at the beginning of the file and one at the end.
>
> **Underlining.** To produce underlining, press CTRL PS before and after the desired words. If you want continuous underlining, make sure you type underscore characters between words. Otherwise, only the words themselves will be underscored and the spaces between the words will be blank.
>
> **Strikeouts.** To produce a strikeout, press CTRL PX before and after the desired words. ~~Any obsolete words will then be stricken from the text in the printed copy~~.

NOTES

Lesson 10
Creating special effects: Part 2

In this lesson we continue with subscripts, superscripts, strikeovers, and non-break spaces.

Typing Subscripts

Subscripts are used in chemical notation and certain mathematical applications. Here is an exercise in typing subscripts:

1. Reopen the file "Special":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Subscripts, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type, using CTRL PV (^P^V) before and after each number, "To type a subscript, press CTRL PV before and after the desired number. For example, H_2O is the chemical name for water. Here is a 'system of linear equations:'

      $a_1x + b_1y = c_1$

      $a_2x + b_2y = c_2$"

4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

^BSubscripts^B. To type a subscript, press CTRL PV before and after the desired number. For example, H^V2^VO is the chemical name for water. Here is a 'system of linear equations:'

a^V1^Vx + b^V1^Vy = c^V1^V

a^V2^Vx + b^V2^Vy = c^V2^V

WordStar has inserted a ^V before and after each subscript. To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the ¨ Opening ¨ menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

Subcripts. To type a subscript, press CRTL PV before and after the desired number. For example, H_2O is the chemical name for water. Here is a 'system of linear equations:'

$$a_1x + b_1y = c_1$$

$$a_2x + b_2y = c_2$$

Typing Superscripts

Superscripts are used to flag footnotes in ordinary text and to represent exponents in mathematical equations. Here is an exercise in typing superscripts:

1. Reopen the file "Special":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Superscripts, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type, using CTRL PT (^P^T) before and after each number, "To type a superscript, press CTRL PT before and after the desired number. For example, suppose we wanted to place a footnote at the end of this sentence.3 Here is one mathematical equation for a circle:

$$(x - a)^2 + (y - b)^2 = r^2$$

4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

^BSuperscripts^B. To type a superscript, press CTRL PT before and after the desired number. For example, suppose we wanted to place a footnote at the end of this sentence.^T3^T Here is one mathematical equation for a circle:

(x - a)^T2^T + (y - b)^T2^T = r^T2^T

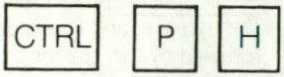
WordStar has inserted a ^T before and after each superscript. To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

Superscripts. To type a superscript, press CTRL PT before and after the desired number. For example, suppose we wanted to place a footnote at the end of this sentence.[3] Here is one mathematical equation for a circle:

$$(x - a)^2 + (y - b)^2 = r^2$$

Typing Strikeovers



WordStar allows you to print more than one character in the same position, so that you can form new characters by combining the ordinary ones. For example, you could combine c and | to form a cent sign or you could combine a special symbol with a letter to form an accented letter in a foreign language. Here is an exercise in typing strikeovers:

1. Reopen the file "Special":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Strikeovers, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type, using CTRL PH (^P^H) and an apostrophe after the first e in fiancee, "To type a strikeover, press CTRL PH between any two characters. For example, you could type ' over the first e to print the French word "fiancée."
4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

^BStrikeovers^B. To type a strikeover, press CTRL PH between any two characters. For example, you could type ' over the first e to print the French word "fiance^H'e."

WordStar has inserted a ^H between the pair of characters to be combined. To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the "Opening" menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

Strikeovers. To type a strikeover, press CTRL PH between any two characters. For example, you could type ' over the first e to print the French word "fiancée."

Typing Non-Break Spaces

CTRL P O

Suppose you are typing about a product called "Tempo III," and you want to be sure that WordStar never splits this name at the end of a line. WordStar allows you to type a special space between "Tempo" and "III" that will prevent the two from being split by a line break. Here is an exercise in typing non-break spaces:

1. Reopen the file "Special:"
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Non-Break Spaces, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. Now type, using CTRL PO (^P^O) before "IV" and "XII," "To type a non-break space between two words, press CTRL PO instead of the space bar whenever you type these two words. WordStar will make sure the words are always kept together. Here are some examples: MasterSort IV, Spinout XII."
4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

^BNon-Break Spaces^B. To type a non-break space between two words, press CTRL PO instead of the space bar whenever you type these two words. WordStar will make sure the words are always kept together. Here are some examples: MasterSort^OIV, Spinout^OXII.

WordStar has inserted a ^0 between "MasterSort" and "IV" and between "Spinout" and "XII." (Without the non-break space, "Spinout" would have stayed on the fourth line, with "XII" on the fifth line. To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening " menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

> **Non-Break Spaces.** To type a non-break space between two words, press CTRL PO instead of the space bar whenever you type these two words. WordStar will make sure the words are always kept together. Here are some examples: MasterSort IV, Spinout XII."

Combining Special Effects

In Lessons 9 and 10 you have learned to create a variety of special effects with WordStar: boldface characters, double-strike characters, underlined text, stricken text, subscripts, superscripts, strikeovers, and non-break spaces. So far you have tried these features only in separate examples. However, you are free to combine them in almost any way you can imagine. You can have a boldface subscript, an underlined superscript, a multiple strikeover, and so on. Here is an exercise in combining special effects:

1. Reopen the file "Special":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.

2. Position the cursor:
   a. When the file is ready, press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL I to move the cursor to the first tab.
3. Type the paragraph:
   a. Press CTRL PB (^P^B), type Combining Special Effects, press CTRL PB (^P^B) again, and type a period, followed by two spaces.
   b. In this paragraph, use boldface, subscript, strikeover, and superscript in the appropriate places to produce the special effects. Now type, "To combine special effects, simply insert one control character after another. For example, your **WordStar**™ cursor may look like this: ■. [Use H, I, N, and Z.]

      $|\mathbf{a}| = / (a_x^2 + a_y^2 + a_z^2)$"
4. Press RETURN twice to leave a blank line after the paragraph. This is how your paragraph should look on the screen:

```
^BCombining Special Effects^B. To combine special effects,
simply insert one control character after another. For example,
your ^BWordStar^B^VTM^V cursor may look like this: H^HI^HN^HZ.

|^Ba^B| = /(a^Vx^V^T2^T + a^Vy^V^T2^T + a^Vz^V^T2^T)
```

WordStar has inserted many control characters. To see how this will look on paper, print this file on your printer:

1. Press CTRL KD (^K^D) to save your file on disk.
2. When the " Opening " menu appears, press P.
3. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC.
4. This is how this paragraph should look:

Combining Special Effects. To combine special effects, simply insert one control character after another. For example, your **WordStar**™ cursor may look like this: ■.

$|\mathbf{a}| = / (a_x^2 + a_y^2 + a_z^2)$

Lesson 11
Finding and replacing text

In this lesson you will learn how to set place markers in your file–markers to which you can later return. You will also learn how to search for a given word in your file, and if necessary to replace it with another word.

First you will need a file to work with:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.

Setting Place Markers

CTRL K n

Now that you have an open file, you can set place markers in different locations:

1. Set place marker number 1:
   a. Move the cursor to the blank space in front of the heading "Double-Striking" (second paragraph).
   b. Press CTRL K1 (^K1). (You will see <1> appear highlighted where the cursor was. Don't be concerned when you see the text get pushed to the right.) You have just set place marker number 1 in front of this paragraph.
2. Set place marker number 2:
   a. Move the cursor to the blank space right after "Strikeouts" (fourth paragraph).
   b. Press CTRL K2 (^K2). (You will see <2> appear.) You have just set place marker number 2.
3. Set place marker number 3:
   a. Move the cursor to the blank space after "r^2" in the equation (sixth paragraph).
   b. Press CTRL K3 (^K3). (You will see <3> appear.) You have just set place marker number 3.

You can set as many as ten place markers in a single file by pressing CTRL K, followed by a single digit (0-9). (The markers do not have to be in numerical order.) You can then return the cursor to any of these locations very quickly.

NOTE

You must release the CTRL key before pressing any number key.

Moving to Place Markers

CTRL Q n

Now that you have three place markers set in your file, you can move the cursor to any one of them at any time:

1. Press CTRL Q2 (^Q2) to move the cursor to place marker number 2.
2. Press CTRL Q3 (^Q3) to move the cursor to place marker number 3.
3. Press CTRL Q1 (^Q1) to move the cursor to place marker number 1.

You can move the cursor to any place marker that you have already set by pressing CTRL Q, followed by the number of the marker. It probably doesn't need to be said, but you can't move the cursor to a marker that you haven't set.

Finding a String

CTRL Q F

In computer language, a "string" isn't something you tie around your finger; it's a sequence of characters, which may or may not form a word or phrase. WordStar makes it easy for you to find any word, phrase, or string of up to 30 characters with a simple command.

1. With the file "Special" still open, press CTRL QR (^Q^R) to return the cursor to the beginning of the file.
2. Press CTRL QF (^Q^F) to request a search.
3. When the prompt FIND? appears, type words and press ESC (ESCAPE).
4. The cursor will come to rest at the W in "words" in the second line of the first paragraph.
   a. If this is what you are looking for, you can note the location, make corrections, and so on.
   b. If this is not what you are looking for, you can ask WordStar to go on to the next one (Step 5).
5. Press CTRL L (^L) to move the cursor to the next occurrence of "words."
6. Keep pressing ^L until the NOT FOUND message appears (*** NOT FOUND *** words *** Press ESC Key ***). This message tells you that WordStar could not find another occurrence of "words." You have two options:
   a. To return to the last occurrence of "words," press ESC (ESCAPE), then CTRL QV (^Q^V).
   b. To return to the beginning of the file, press ESC (ESCAPE), then CTRL QR (^Q^R).

You have just completed a simple, unconditional search. Now repeat Steps 1-6, substituting "under" for "words." Note that WordStar found "underlining," "underlining," "underscore," and "underscored" in the third paragraph. This shows that you can look for a prefix (or suffix) of a word without having to know the rest of the word. (Soon you will learn how to specify only the word "under" by itself.)

Disregarding Case

Option U

If you look closely at the third paragraph, you will see that WordStar missed one occurrence of "under"—the "under" in the paragraph heading "Underlining." WordStar skipped this not because it was boldface, but because the U was capitalized. Here is how you can correct that:

1. Press CTRL QR (^Q^R) to move the cursor to the beginning of the file.
2. Press CTRL QF (^Q^F) to request a search.
3. When the prompt FIND? appears, type under and press RETURN (instead of ESCAPE).
4. This time another prompt will appear (OPTIONS?). Now type U and press RETURN. (The U tells WordStar to disregard the difference between upper case and lower case letters.)
5. Now WordStar will stop at the paragraph heading "Underlining."

Searching for Whole Words

Option W

In the simple search for "under," recall that WordStar found words that contained "under," but not the word itself, since there was none to be found. Now you will learn how to ask WordStar to search only for the word itself:

1. With the file "Special" still open, press CTRL QC (^Q^C) to move the cursor to the end of the file.
2. Type this sentence: "Under the last paragraph on special effects you will find this sentence all by itself."
3. Press CTRL QR (^Q^R) to return the cursor to the beginning of the file.
4. Press CTRL QF (^Q^F) to request a search.
   a. When the prompt FIND? appears, type Under and press RETURN.
   b. When the OPTIONS? prompt appears, type W and press RETURN. (The W tells WordStar to look only for a whole word.)
5. WordStar will stop at the word "Under" at the beginning of the sentence you just typed; it will not stop at "Underlining" or "underscore."

You have tried two find options so far, U (disregard the difference between upper and lower case letters) and W (search only for whole words). You can also combine options in any order. Repeat Steps 1-6, this time typing "under" after FIND and either UW or WU after OPTIONS? in Step 6.

Replacing One String with Another

WordStar also allows you to search for a string, then replace it with another string. This can help you when you need to change one word to another in your file:

1. With the file "Special" open, press CTRL QR (^Q^R) to return the cursor to the beginning of the file.
2. Press CTRL QA (^Q^A) to request a replace.
   a. When the prompt FIND? appears, type words and press RETURN.
   b. When the prompt REPLACE WITH? appears, type numbers and press ESC (ESCAPE).
3. The cursor will come to rest at the W in "words" in the second line of the first paragraph, with this prompt displayed above: REPLACE (Y/N):
   a. Type Y to allow the replacement.
   b. Press CTRL L (^L) to continue.
4. When the REPLACE (Y/N) prompt appears, type Y. (Continue in this way until you have replaced all occurrences of "words" with "numbers.")

5. When the NOT FOUND message appears, press ESC (ESCAPE), then CTRL QR (^Q^R).

You have just completed a manual replacement. A manual replacement allows you to look at each occurrence of the string and make a decision about whether you want to replace it. If you are absolutely certain that you want every occurrence replaced, you can ask WordStar to perform an automatic replacement, which is much faster.

Automatic Replacement

Option N

All the options for finding a string may also be used for replacing a string. There is also an additional option you can request to have WordStar skip the REPLACE (Y/N) prompt and make all replacements automatically:

1. With the cursor at the beginning of file "Special," press CTRL QA (^Q^A) to request replacement.
   a. When the prompt FIND? appears, type numbers and press RETURN.
   b. When the prompt REPLACE WITH? appears, type words and press RETURN.
   c. When the prompt OPTIONS? appears, type GN and press RETURN. (The GN tells WordStar to make all replacements without asking.)
2. This time WordStar will move quickly through your file and replace each occurrence of "numbers" with "words."
3. Press CTRL KQ (^K^Q) to "abandon" this file.
   a. In response to the prompt ABANDON EDITED VERSION OF FILE A:DISPLAY ? (Y/N) ■, type Y (no RETURN necessary).
   b. The file will be abandoned.

You can abandon a file any time you don't want to keep the results of your most recent session.

Summary

In this lesson you have learned how to set place markers anywhere in your file and then move the cursor to one of these markers. You press CTRL K (^K) and a number to set a place marker; you press CTRL Q (^Q) and a number to move the cursor to one of these place markers.

You have also learned how to search for words, phrases, or other strings in your file. You press CTRL QF (^Q^F) to begin a search to find a string; you press CTRL QA (^Q^A) to begin a search to replace a string. Two of the options available for either find or replace are to disregard the difference between upper and lower case (option U) and to search only for whole words (option W). Another option available only for replace is to make an automatic replacement without asking (option N).

Additional options are also available during a search. These are described in other WordStar publications.

Lesson 12
Handling blocks and files

In this lesson you will learn the different ways you can save your file after a typing session; you will learn how to mark a block of text to be moved, copied, or deleted; and you will learn how to move, copy, delete, or rename an entire file.

In Lesson 1 you learned that it is important to save the file you are working on fairly often to avoid losing text. In this lesson you will practice the four ways of saving (or not saving) your file after a session of typing.

Saving Your File and Continuing

CTRL K S

If you are going to spend a lot of time on a typing job, you should interrupt the job from time to time to save your file, then resume work. (Remember, no text is saved until you request to have it saved, and until it is saved, it can be lost.) Here is an example of the procedure:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Control and press RETURN.
3. Now you have an open file. In a real typing situation, you would be spending some time with this file. For now, assume you have been working with the file for a while, and move the cursor to the middle of the file.
4. Press CTRL KS (^K^S) to save the file.
5. After a short time (and some noises from your disk drive), you will see your file return to the screen.
6. Press CTRL QP (^Q^P) to return the cursor to where it was before you saved the file.

Pressing CTRL KS (^K^S) allows you to save a copy of your file on disk, then continue typing where you left off. Now leave your file just the way it is for the next exercise.

Saving Your File and Going to Another WordStar Operation

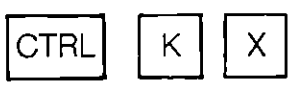
CTRL K D

If you have completed work on one file and you plan to do something else with WordStar (like opening another file or printing the same file), you can save the file and return to the " Opening " menu:

1. With file "Control" still open from the previous exercise, press CTRL KD (^K^D) to save the file.
2. Again, the file is saved, but this time WordStar displays the " Opening " menu instead of the file after the save.

Pressing CTRL KD (^K^D) allows you to save your file and go to another file or begin another WordStar operation.

Saving Your File and Stopping WordStar



If you have completed work on your file and you are also completing a session with WordStar, you can save your file and exit from WordStar at the same time:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
3. Now you have an open file from which to exit.
4. Press CTRL KX (^K^X) to save your file and exit from WordStar.
5. After saving your file, you will find that WordStar is no longer running. Type a:ws (or just ws and press RETURN to restart WordStar.

Pressing CTRL KX (^K^X) allows you to save your file and exit from WordStar. Once you are out of WordStar, you may want to run utility programs under your computer's operating system. For example, your operating system probably has programs to check the amount of space left on your disk or to copy or delete files.

Abandoning a File

If you work on a file for a while and discover that you have made some big mistakes that you want to get rid of, you can abandon the file instead of saving it. By doing this, you retain your previous version of this file, which is still on disk (and which doesn't have the mistakes). You may also want to abandon a file that you have just opened by mistake.

1. When WordStar is running again and the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
3. Now you have an open file again. Suppose you have messed it up and want to get rid of it.
4. Press CTRL KQ (^K^Q) to abandon the file.

Pressing CTRL KQ (^K^Q) allows you to abandon a file that you don't want to keep. The next time you open the file with this name, you will get the previous version of it.

Marking a Block

WordStar allows you to move, copy, or delete a block of text. The first step is to mark the beginning and end of the block that you want to deal with. Here is a sample procedure:

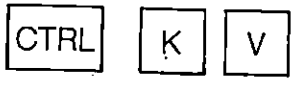
1. Open the file "Special":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
2. Set the beginning marker:
   a. Move the cursor to the blank line above the first paragraph ("**Boldface Printing**").
   b. Press CTRL KB (^K^B) to mark the beginning of a block. (**<B>** will appear on the screen.)
3. Set the ending marker:
   a. Move the cursor straight down to the blank line between the fourth and fifth paragraphs (left-hand margin, just above "**Subcripts**").
   b. Press CTRL KK (^K^K) to mark the end of this block.
   c. If your screen has the capability, you will see the four paragraphs become highlighted.
   d. If your screen is not capable of highlighting, **<K>** will appear on the screen.

In Lesson 11, you learned how to move the cursor to any one of ten numbered markers. For your convenience, WordStar also allows you to move the cursor quickly to the block markers **<B>** and **<K>**:

1. Press CTRL QB (^Q^B) to move the cursor to the beginning marker **<B>**.
2. Press CTRL QK (^Q^K) to move the cursor to the ending marker **<K>**.

Now you are ready to deal with this block of text. (An easy way to remember these letters is to think of the word BlocK, which begins with **B** and ends with **K**.) One of the things you can do with the block is to move it to somewhere else in the file.

Moving a Block



If you received an addendum with this manual, read it to make sure that your system has sufficient memory to perform this operation.

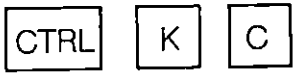
After typing your text, you may decide that a certain sentence, paragraph, or group of paragraphs belongs in a different location. WordStar allows you to move it as a block of text. For practice you will move the four paragraphs you just marked in the previous section:

1. Press CTRL QC (^Q^C) to move the cursor to the end of the file.
2. Press CTRL KV (^K^V) to move the four paragraphs to this location.
3. Now press CTRL QR (^Q^R) to return the cursor to the beginning of the file, then move it straight down to the blank line above the first paragraph ("**Subscripts**").
4. Press CTRL KV (^K^V) to return the four paragraphs to their original location. (The block markers are still in effect, even though you have already moved the block once.)

Pressing CTRL KV (^K^V) allows you to move a block of text from one location to another. After the move, the block will no longer be in the previous location. Another thing you can do with a marked block of

text is to make a copy of it somewhere else in the file (or the same place). The next section explains how to do this.

Copying a Block

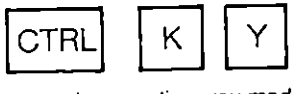


You may want to repeat a certain block of text in more than one place in your file. For practice, you will make a copy of the four paragraphs you marked in a previous section:

1. Press CTRL QC (^Q^C) to move the cursor to the end of the file.
2. Press CTRL KC (^K^C) to copy the four paragraphs to this location.
3. Press CTRL KC (^K^C) to make another copy. (The block markers remain in effect, even after you have copied the block. The markers remain until you save your file or mark another block of text.)
4. Press CTRL KH (^K^H) to hide the block markers. (This can sometimes be a helpful precaution.)

Pressing CTRL KC (^K^C) — after block markers have been set — allows you to make a copy of a block of text at the place where the cursor is currently located. The original block is not changed. Another thing you can do with a marked block is to delete it. The next section explains how to do this.

Deleting a Block

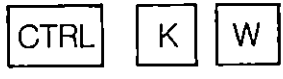


In the previous section, you made an extra copy of the four paragraphs that were marked. For practice you will delete one of them:

1. Press CTRL KH (^K^H) to make the block markers reappear on the screen.
2. Press CTRL KY (^K^Y) to delete the marked block. (It doesn't matter where the cursor is located.)
3. Press CTRL KQ (^K^Q) to abandon the file. (Now the block markers are gone.)

Pressing CTRL KY (^K^Y) allows you to delete a block of text that has been marked. The block is gone and so are the markers. (The block-hiding feature (CTRL KH) can be used to protect you from an accidental deletion.)

Writing a Block to Another File



So far you have been handling blocks of text only within the same file. Now you will learn how to transfer a block out of the current file into another file. Here are the steps:

1. Reopen the file "Special":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE EDIT? appears, type Special and press RETURN.
2. Set the beginning marker:
   a. When the file appears, move the cursor to the blank line above the first paragraph **("Boldface Printing").**
   b. Press CTRL KB (^K^B) to mark the beginning of a block.
3. Set the ending marker:
   a. Move the cursor down to the blank line between the fourth and fifth paragraphs (just above

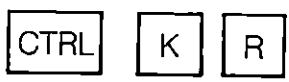
"**Subscripts**"). (CTRL C (^C) twice should do it.)

b. Press CTRL KK (^K^K) to mark the end of this block.

4. Write the block to a temporary file named "x:"
   a. Press CTRL KW (^K^W) to request a block write.
   b. When the prompt NAME OF FILE TO WRITE MARKED TEXT ON? appears, type x and press RETURN.
5. Press CTRL KQ (^K^Q) to abandon "Special."

WordStar will write this block to a new file named "x." Now you will learn how to read the block from this new file into another file. (It's usually a good idea to give temporary files like x short, one-letter names to make them easy to use and easy to identify.)

Reading One File into Another



In the previous section, you marked a block of text and then wrote it into a new file. Now you will read this new file into still another file:

1. Reopen the file "Control":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Control and press RETURN.
2. Read "x" into "Control":
   a. When the file appears, move the cursor down to the blank line between the two paragraphs.
   b. Press CTRL KR (^K^R) to request a file read.
   c. When the prompt NAME OF FILE TO READ? appears, type x and press RETURN.

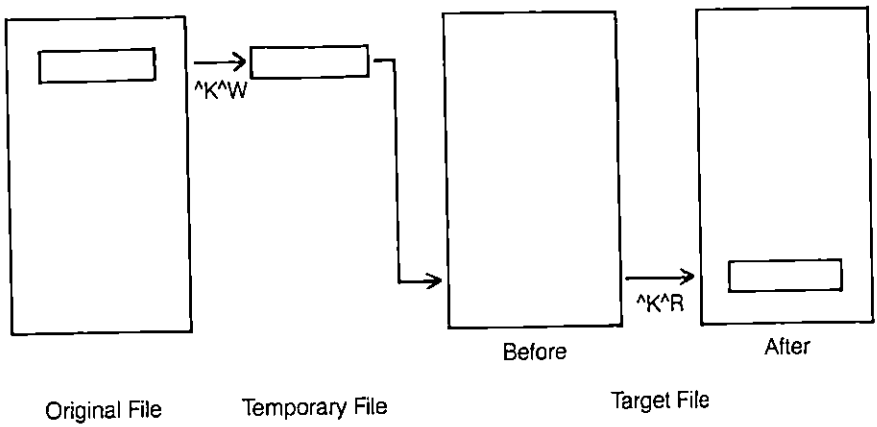
WordStar will read the entire contents of file "x" into file "Control." Scroll the screen up and down to check this. The four paragraphs of file "x," which originally came from file "Special," have been inserted into file "Control." This is how you copy text from one file to another. (You can press CTRL KQ (^K^Q) to abandon file "Control.")

Summary: Moving Text from One File to Another

The exercise you have just completed in the previous two sections illustrates how you copy text from one file to another. It's a two-step procedure in WordStar:

- First mark the block of text to be moved and write it to a temporary file.
- Then open the target file, position the cursor and read the text from the temporary file.

Now a copy of the text has been transferred from the original file to the target file via a temporary file, as shown in the following illustration:



Moving Text from One File to Another

Copying a File

CTRL K O

Now you will learn how to make a copy of a file:

1. When the " Opening " menu appears, press O.
2. When the prompt NAME OF FILE TO COPY FROM? appears, type x and press RETURN.
3. When the prompt NAME OF FILE TO COPY TO? appears, type y and press RETURN.

WordStar will make a copy of file "x," called file "y." To verify this, look at your disk directory, which usually appears under the " Opening " menu. You can also open file "y" to see that it is the same.

Note that you don't have to use the " Opening " menu to copy a file. You can also use CTRL KO (^K^O) if you're in the middle of a file (it doesn't have to be the file you're copying).

Renaming a File

CTRL K E

WordStar allows you to change the name of a file:

1. When the " Opening " menu appears, press E.
2. When the prompt NAME OF FILE TO RENAME? appears, type x and press RETURN.
3. When the prompt NEW NAME? appears, type z and press RETURN.

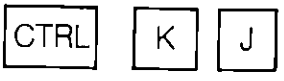
WordStar will change the name of file "x" to file "z." File "x" no longer exists. You can verify this by looking at your disk directory, which usually appears below the " Opening " menu. You can also look at the actual file:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type z and press RETURN.

3. After glancing over the file, press CTRL KD (^K^D) to save a copy of it on disk.

Note that you don't have to use the "Opening" menu to rename a file. You can also use CTRL KE (^K^E) if you're in the middle of a file (it doesn't have to be the file you're renaming).

Deleting a File



Finally, Wordstar allows you to delete any file you have entered:

1. When the "Opening" menu appears, press Y.
2. When the prompt NAME OF FILE TO DELETE? appears, type z and press RETURN.

WordStar will delete file "z." You can verify this by looking at your disk directory, which usually appears below the "Opening" menu.

Note that you don't have to use the "Opening" menu to delete a file. You can also use CTRL KJ (^K^J) — not CTRL KY — if you're in the middle of a file (it doesn't have to be the file you're deleting). (Since Y is the "no-file" key for deleting a file, you may think that CTRL KY is the key sequence to use when you're in another file. But CTRL KY is for deleting a marked block.)

Restoring a Lost File from the Backup File

Any time you lose a file, you can restore it from the backup file that WordStar created the last time you saved a copy of it. For example, suppose you realized after deleting "z" that you really wanted to keep the file. You could restore "z" from "z.bak" as follows:

1. When the "Opening" menu appears, press O.
2. When the prompt NAME OF FILE TO COPY FROM? appears, type z.bak and press RETURN.
3. When the prompt NAME OF FILE TO COPY TO? appears, type z and press RETURN.

WordStar will make a copy of "z.bak," called "z." You can verify this by looking at your disk directory. This new "z" will contain all the changes you made before the last time you saved it. You can make a copy of a backup file, but you can never edit the backup file itself.

End of the Intermediate Course

This concludes the Intermediate Course. By now you have learned most of WordStar's major features. Here is a brief summary of what you have learned:

Lesson 7. You learned to center text on a line and indent text using the tab stops. You also learned how to change the margins and tabs that WordStar provides automatically.

Lesson 8. You learned how to type tables using both ordinary tabs and decimal tabs.

Lesson 9. You learned how to type boldface, double-strike, underlined, and stricken text.

Lesson 10. You learned how to type subscripts, superscripts, strikeovers, and non-break spaces. In addition, you learned how to combine special effects and how to type two more special characters.

Lesson 11. You learned how to set place markers in a file and then move the cursor to them. You also learned how to search for a string and how to replace a string, along with several options (disregard case, search for whole words, automatic replace).

Lesson 12. You learned how to save your file (or not save it) in four different ways. You also learned how to mark a block to be moved, copied, deleted, or transferred to another file. Finally, you learned how to copy, rename, or delete an entire file, including how to restore a lost file from the backup copy.

So far you have created the following files:

PRACTICE (Lesson 2)
LETTER (Lesson 3)
CONTROL (Lesson 6)
DISPLAY (Lesson 7)
TABLES (Lesson 8)
SPECIAL (Lessons 9)
X (Lesson 12)
Y (Lesson 12)
Z (Lesson 12)

If you plan to repeat any of these lessons or you have no further use for these files, you may want to delete them now. If you plan to go on to the Extended Course, do not delete these files now — some of them will be used again.

Extended Course

13 Printing and Pagination
- Setting a Conditional Page Break
- Typing an Article
- Making Copies of the Article
- Setting an Unconditional Page Break

14 Printing with Headings and Footings
- Adding Page Headings
- Adding Page Footings
- Printing Selected Pages
- Pausing for Paper Changes
- Suspending a Print Job

15 Typing Form Letters (MailMerge Option Only)
- Preparing the Matrix Letter
- Typing the Data File
- Printing the Form Letters
- Rules For Typing a Data File

16 Envelopes and Mailing Labels (MailMerge Option Only)
- Addressing Envelopes
- Printing Mailing Labels
- Combining Three Tasks into One
- Typing a Command File
- Running the Command File
- Summary

17 Typing Reply Letters (MailMerge Option Only)
- Preparing the Matrix Letter
- The Heading File
- The First Product File
- The Second Product File
- The Third Product File
- Having the Reply Letter Printed
- Summary

18 Chain-Printing (MailMerge Option Only)
- Typing the Text Files
- Printing with Continous Pagination
- Printing with Pagination by Chapter

19 Checking Spelling (SpellStar Option Only)
- Starting SpellStar
- The Operations Menu
- Setting Up Spelling Check Controls
- Rurining a Sample Spelling Check
- Correction Errors in the Text File
- Setting Aside Words to Add to a Dictionary

20 Dictionary Maintenance (SpellStar Option Only)
- What Is Dictionary Maintenance
- Setting Up Dictionary Maintenance Controls
- Setting Up Dictionary Maintenance Options
- Adding Words to the Main Dictionary
- Creating and Updating a Supplemental Dictionary
- Deleting Words from a Dictionary
- Combined Add/Delete Maintenance

Lesson 13
Printing and pagination

In this lesson you will learn how to print a document longer than one page. This will involve telling WordStar where to make page breaks and how to format each printed page. You will also learn how to select the various printing options provided by WordStar, along with how to suspend, stop, or resume a printing job.

Setting a Conditional Page Break .cp

When you print a document longer than one page, you have to have a way to tell WordStar where to make page breaks. Otherwise, WordStar's automatic methods may break pages in undesirable places. One way you can do this is by setting a conditional page break:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Special and press RETURN.
3. When the file appears, press CTRL QC (^Q^C) to move the cursor to the end of the file, then back up a few lines to view the last paragraph.

You will see that the paragraph is split in half by a dashed line, with a P in the right-hand margin. This is WordStar's way of telling you that this is where WordStar is planning to break the first page. Suppose you decide that this isn't the best place to make a page break. This is how to tell WordStar to move the page break:

1. Move the cursor up to the blank line above the paragraph (the line above "**Combining Special Effects.**").
2. Make sure you see INSERT ON in the upper right-hand corner of the screen; if you don't, press CTRL V (^V) to make it appear.
3. Press RETURN to create a new blank line.
4. Type .cp5, and press RETURN. (You will see the page break marker jump up two lines.)
5. Press CTRL KD (^K^D) to save a copy of your file.

You have just moved the page break from the middle of the paragraph to the top of the paragraph. The .cp command is the conditional page command, which allows you to give WordStar a certain number of printed lines (in this case, 5). This command says to WordStar, "Keep the next five lines together. If they won't fit on this page, then move them all to the next page." The line containing the .cp command is not counted by WordStar as a line of text.

If you would like to see this document on paper, you can print it on your printer:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type Special and press ESC (ESCAPE).

Typing an Article

Sometimes you need to have a page broken in a certain place, no matter what. For example, at the start of a new chapter, the title must be at the top of a new page, regardless of how much or how little text is printed on the previous page. To see how to set an unconditional page break, you will first have to type several new paragraphs of text:

1. When the " Opening " menu appears, type D.
2. When the prompt NAME OF FILE TO EDIT? appears, type DataStar and press RETURN.
3. When the empty file appears, leave three blank lines and type the following text just as you see it here:

DataStar

If you'd like one, easy, uniform way to enter, retrieve, and update all your records, you'll love DataStar. Why use sixteen different programs to handle sixteen different kinds of records . . . when you can turn to DataStar? **RETURN**

You pay for only one program, but you get the ability to enter, verify, update, and print all your records, whether they're address lists, inventories, invoice and order records, accounting and employee information, shipping and receiving data or anything else. **RETURN**

What's more, DataStar handles all that information just the way you want, because you set up the system so it makes sense for you and the way you do business. **RETURN**

You don't have to be a computer whiz to know and love DataStar. In fact, you don't have to know anything about computers . . . or even how to type. First of all, DataStar itself takes you on a short demonstration tour that shows you how easy it is to operate. Even better, you're told exactly what to do while you're doing it — with prompts right on the screen, whether you're making or filling out a "form." **RETURN**

You use simple commands on a keyboard that looks like an ordinary typewriter. And you use the DataStar manual that looks as though it's written in ordinary language — and is. Even if you don't know anything about computers, you can run DataStar right. You can't inadvertently affect, change, or wipe out any part of DataStar by making mistakes. **RETURN**

You can even install DataStar yourself. It's compatible with a wide range of microcomputers that run under CP/M or a CP/M-derived operating system... virtually any Z80 or 8080/8085 system. **RETURN**

The only computer forms you use are in plain and simple English. Because you design them. You don't have to translate all your current forms into exotic computer language that nobody understands. You don't have to translate them at all. If you wish, you can enter those forms into DataStar just the way they now look on paper. **RETURN**

Other systems may restrict the number and length of lines — or "fields," the overall size of the form, or your ability to change it or to create new forms. With DataStar, you can design virtually anything you want — even a form that's three times as long or three times as wide as the screen. And then change it whenever you have a better idea. **RETURN**

RETURN

Making Copies of the Article

With the text now typed, your next step is to make several copies of it for printing:

If you received an addendum with this manual, read it to be sure that your system has sufficient memory to perform this operation.

1. Mark the beginning of the block:
   a. Press CTRL QR (^Q^R) to return the cursor to the beginning of the file.
   b. Press CTRL KB (^K^B) to set a beginning marker.
2. Mark the end of the block:
   a. Press CTRL QC (^Q^C) to move the cursor to the end of the file.
   b. Press CTRL KK (^K^K) to set an end marker.
3. Without moving the cursor, press CTRL KC (^K^C) to copy the block of text (to make a duplicate copy). You now have two copies of the same text.
4. Repeat Step 3 two more times to make two more copies.
5. Press CTRL KH (^K^H) to hide the block markers and turn off the highlighting.

Setting an Unconditional Page Break .pa

Now you should have four copies of the text. However, if you move the cursor through the file, you will discover that the page breaks are not where you would like them to be. You would like each copy to appear on a separate page. Here is how you can make this happen:

1. Move the cursor to the first blank line below the first copy of the article (just below " . . . have a better idea.").
   a. Look at the status line to find the location.
   b. You will find this blank line on PAGE 1 at LINE 46.
2. Type .pa. (You will see the page divider jump to the line below .pa.)
3. Repeat Steps 1 and 2 for each of the remaining three copies of the article.
4. Press CTRL KD (^K^D) to save a copy of the file.

You have just set unconditional page breaks between each pair of articles. The .pa command is the unconditional page command. This command tells WordStar to cause a page break on the very next line. The line containing .pa is not counted by WordStar as a line of text.

If you would like to see this document on paper, you can print it on your printer:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type DataStar and press ESC (ESCAPE).

When you look at the results, you will see that the pages have been numbered 1-4, with each number centered at the bottom of a page. (In this learning exercise, the four pages are the same; but in actual practice, you will be printing pages that are different.) If you would like to number the pages a different way (such as alternating from side to side), you will learn how to do this in Lesson 14.

Lesson 14
Printing with headings and footings

In Lesson 13, you typed some text from a brochure, made copies of it, then printed the four copies as a four-page document. In this lesson you will print the same four pages with headings and footings. You will also learn how to print selected pages of a document, pause for paper changes, and suspend a print job in the middle.

Adding Page Headings .he

When you print a book, you often print the same heading at the top of each page. For example, you might print the title of the book or the title of a chapter. Just for practice, you can now add a heading to the document you typed in Lesson 13:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type DataStar and press RETURN.
3. Make sure you see INSERT ON in the upper right-hand corner of the screen. If you don't, press CTRL V (^V) to make it appear.
4. Press CTRL N to create an extra blank line.
5. Now type, .he ^SMicroPro Brochure^S and press RETURN (use CTRL PS (^P^S) to insert the ^S underline characters).

The .he command is the heading command. It allows you to type in any one-line heading, using any special effects that you learned earlier in this guide. In a moment you will print your four pages again, but first you will get a chance to add a footing also.

Adding Page Footings .fo

WordStar also allows you to print from one character to a full line of text at the bottom of each page. For practice, you will print the page numbers on alternating sides of the page:

1. On the next blank line, type .fo ^K (use CTRL PK (^P^K) to enter the CTRL K (^K)).
2. Move the cursor out to column 69 (watch the column number on the status line at the top of the screen). (You can use CTRL I (^I) to tab most of the way.)

3. Type # for the page number.
4. Press CTRL KD (^K^D) to save a copy of your file.

You have just entered a simple footing. The .fo command is the footing command. It allows you to enter up to one line of text to be printed at the bottom of every page. The CTRL K that follows the space after .fo tells WordStar to remove the spaces between .fo and # on even-numbered pages (this is how the page numbers are from side to side).

If you would like to see this document on paper, you can print it on your printer:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type DataStar and press ESC (ESCAPE).

You can see how the heading and footing you requested were printed at the top and bottom of each of the four pages, even though you typed them only once.

Printing Selected Pages

WordStar allows you to print only part of your file. For example, to print only pages 2 and 3 of "DataStar," you could follow these steps:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT appears, type DataStar and press RETURN (not ESCAPE).
3. When the prompt DISK FILE OUPUT (Y/N): appears, press RETURN to skip this question.
4. When the prompt START AT PAGE NUMBER (RETURN for beginning)? appears, type 2 and press RETURN.
5. When the prompt STOP AFTER PAGE NUMBER (RETURN for end)? appears, type 3 and press RETURN.
6. Press RETURN four more times to skip the remaining questions and start printing.

You can see from the page numbers that only pages 2 and 3 have been printed. Note that a RETURN after the START question means to start printing at the beginning of the file (page 1 in this case) and a RETURN after the STOP question means to print all the way to the end of the file (page 4 in this case).

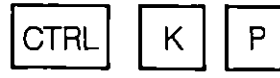
Pausing for Paper Changes

If your printer has a single-sheet feeder, you can try this feature with separate, hand-fed sheets. If not, you can just use continuous form and pretend the sheets are separated. Here are the steps:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type DataStar and press RETURN four times.
3. When the question PAUSE FOR PAPER CHANGE BETWEEN PAGES (Y/N): appears, type Y and press RETURN four more times to start printing.

After printing one page, the printer will stop to give you time to insert the next page. As soon as the next page is ready, press P to continue printing. (If you forget, you can look at the " Opening " menu, where you will see P=CONTINUE.)

Suspending a Print Job



You can suspend a print job before it has completed if necessary. Here is an exercise in how to suspend printing in progress:

1. When the " Opening " menu appears, press P.
2. When the prompt NAME OF FILE TO PRINT? appears, type DataStar and press ESC (ESCAPE).
3. After a few paragraphs have been printed, press P again. (You have just suspended printing.)
4. When the prompt TYPE "Y" TO ABANDON PRINT, "N" TO RESUME, U TO HOLD: appears, type N to resume printing (no RETURN required here).
5. After a few more paragraphs have been printed, press P again.
6. When the prompt appears, type Y to abandon printing.
7. Move the paper to the correct position if necessary.

You have just practiced two of the options available to you (resuming the print job and abandoning the print job). In this example, you started printing from the " Opening " menu. You also could have started printing while you were in the middle of a file, as you will do in the next exercise:

1. Open the file "DataStar:"
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type DataStar and press RETURN.
2. Start printing:
   a. When the file appears on the screen, press CTRL KP (^K^P) to request printing.
   b. When the prompt NAME OF FILE TO PRINT? appears, type DataStar and press ESC (ESCAPE).
   c. As soon as the file starts to print, you will see the following message appear on-screen below the menu:

      WARNING:

      You are printing the same file as you are editing. The last saved version will be printed, not reflecting unsaved changes. Furthermore, WordStar will not allow you to save the edited version while the print is in progress.

If your computer doesn't have enough memory to print and edit at the same. you will see a message telling you to finish one operation before starting the other.

> You will learn more about this later; right now, just go on to the next step.

3. Suspend, then resume, printing:
   a. After a few paragraphs have been printed, press CTRL KP (^K^P) to suspend printing.
   b. When the prompt TYPE "Y" TO ABANDON PRINT, "N" TO RESUME, ^U TO HOLD: appears, press CTRL U (^U) to hold printing.
   c. When the prompt "*** INTERRUPTED *** Press ESCAPE Key" appears, press ESC (ESCAPE).

d. While the print job is holding, you can move the cursor around, delete text, add text, change margins, and reform paragraphs. (No changes will be included in the current print job, however.)
e. Press CTRL KP (^K^P) to resume printing.

4. Abandon printing:
   a. After a few more paragraphs have been printed, press CTRL KP (^K^P) to suspend printing again.
   b. When the prompt appears (see Step 3b), press Y to abandon printing.
   c. Return the paper to the top-of-form position.
5. Press CTRL KQ (^K^Q) to abandon the file.

To summarize: After you suspend a print job, you may then do one of three things:

- Abandon the print job entirely
- Resume printing after making some checks
- Hold the print job while you perform some other WordStar tasks

Lesson 15
Typing form letters
(MailMerge option only)

In this lesson you will learn how to transform an ordinary letter into a form letter, into which thousands of names and addresses can be inserted. Once you complete this lesson, you will be able to generate a large number of letters from one letter and mailing list. (Your WordStar system must include the **MailMerge** option.)

Preparing the Matrix Letter

The first step in printing thousands of form letters is to prepare a "matrix letter," which contains generic names in place of actual names:

1. When the " Opening " menu appears, press O to copy a file.
2. When the prompt NAME OF FILE TO COPY FROM? appears, type Letter and press RETURN. (This is the letter you typed in Lesson 3.)
3. When the prompt NAME OF FILE TO COPY TO? appears, type Mailing3 and press RETURN. (You have just made a copy of file "Letter" called "Mailing3.")

Eventually, you will print many letters that look just like "Letter." Now that you have a copy of it, you can modify this copy to produce the matrix letter. To do this, you begin by typing some preliminary instructions for WordStar:

1. Open a file called "Mailing3":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Mailing3 and press RETURN.
2. Make sure you see INSERT ON in the upper right-hand corner; if you don't, press CTRL V (^V).
3. Press CTRL N to create a blank line.
4. Type .. File: MAILING3 and press RETURN. (This tells you the name of your file.)
5. On the next blank line type .op and press RETURN. (This is to turn off page-numbering.)
6. On the third blank line type .df LIST3.DAT and press RETURN.(This is to tell WordStar the name of your data file, which you will be typing later.)

7. On the fourth blank line type .rv N,TITLE,COMPANY, ADDRESS1, ADDRESS2, NAME, LOCAL and press RETURN. (This tells WordStar what to read from your data file.)

With the instructions to WordStar completed, you can turn off insertion by pressing CTRL V (^V) and begin modifying the actual letter:

1. Replace the title line with &TITLE&:
   a. Move the cursor to the B in "Bill Somers, President."
   b. Type &TITLE& over the name and press CTRL QY (^Q^Y) to delete whatever is left on the line after "&TITLE&."
2. Replace the company line with &COMPANY&:
   a. Move the cursor down one line to the B in "Beauty, Inc.".
   b. Type &COMPANY& over the name and press CTRL QY (^Q^Y) to delete whatever is left over.
3. Replace the first address line with &ADDRESS1&:
   a. Move the cursor down one line to the 4 in "485 Avenida de las Guapas."
   b. Type &ADDRESS1& over the address and press CTRL QY (^Q^Y) to delete whatever is left over.
4. Replace the second address line with &ADDRESS2&:
   a. Move the cursor down one line to the L in "Los Angeles, California 90036."
   b. Type &ADDRESS2& over the address and press CTRL QY (^Q^Y) to delete whatever is left over.
5. Replace the name in the salutation with &NAME&:
   a. Move the cursor to the M in "Dear Mr. Somers."
   b. Type &NAME& over "Mr. Somers" and delete the last four letters of "Somers" (but leave the colon).
6. Replace the company name with &COMPANY& again:
   a. Move the cursor to the B in "Beauty, Inc." near the end of the first paragraph.
   b. Type &COMPANY& over "Beauty, Inc." and press CTRL T to delete the last three letters of "Inc." (but leave the space before "and").
   c. It won't be necessary to reform the paragraph.
7. Replace the name of the local city with &LOCAL&:
   a. Move the cursor to the B in "Burbank" in the postscript.
   b. Type &LOCAL& over "Burbank" (leave the period).
8. Press CTRL QC (^Q^C) to move the cursor to the end of the file.
9. On a blank line type .pa to tell WordStar to start each letter on a new page.
10. Press CTRL KD (^K^D) to save your file.

You have added five lines of instructions to WordStar (four at the beginning, one at the end) and replaced each specific name or address with a generic name. This changes the sample letter into a matrix letter, ready to receive information from a date file. WordStar will fill information into the places where the generic names are located in the matrix letter. This is how the matrix letter should look on the screen:

```
.. File: MAILING3
.op
.df LIST3.DAT
.rv N, TITLE, COMPANY, ADDRESS1, ADDRESS2, NAME, LOCAL.

                                    July 22, 1981

                                    &TITLE&
                                    &COMPANY&
                                    &ADDRESS1&
                                    &ADDRESS2&

                                    Dear &NAME&:

                                    In reference to our conversation
                                    earlier today, I would like to meet
                                    with you as soon as possible. We
                                    must discuss ^Ball^B possibilities of
                                    merging &COMPANY& and Heavy
                                    Dealing.

                                    Please call my secretary to set an
                                    appointment at your earliest con-
                                    venience.

                                    Sincerely,

                                    Jim Winters, President
                                    Heavy Dealing, Inc.

                                    P.S One item we have to be sure to
                                    cover when we get together is that
                                    plant we have over in &LOCAL&. I
                                    need to hear what you think about
                                    this. Keep in touch.

                                    JW/sl

.pa
```

Typing the Data File

Your next task is to type the data file, which contains the specific names and addresses that will be inserted into the matrix letter:

1. Open a file called "LIST3.DAT":
   a. When the "editing no file" menu appears, press N (not D) to create a non-document file.
   b. When the prompt NAME OF FILE TO EDIT? appears, type LIST3.DAT and press RETURN.
   c. You will see the messages "WAIT" and "NEW FILE" appear on the screen.
2. When the messages leave and the file is ready, type the following five lines of information (each line is continued as one line until you press RETURN):

```
1."Bill Somers, President", "Beauty,Inc." ,485 Avenida de las Guapas, "Los Angeles, California 90036" ,Mr. Somers, Burbank RETURN
2."Running Bear, Chief", Papoose-a-Plenty, North River Fork, "Little Big Horn, Montana 59107", Chief, Billings RETURN
3."Henry Howe, Chairman"; Mixed Reactions, 12736B North Central Avenue, "New York, New York 10024", Mr Howe, Queens RETURN
4. Jane Southern, President", Interiors Unlimited, 7 Rue d'Elegance, "New Orleans, Louisiana 70149", Mrs Southern, Baton Rouge RETURN
5."James Beauregard, Executive"; Sumptuous Dining, 901 Gastronomic Parkway, "Denver, Colorado 80201", Mr. Beauregard, Colorado Springs RETURN
```

4. Press CTRL KD (^K^D) to save your data file.

Each entry line, or record, in your data file contains seven items, or fields, separated by commas. (When a field contains a comma of its own, as "Beauty, Inc." does, it must be typed within quotation marks.) The seven fields in each line correspond to the seven generic names, or variables, you used in the matrix letter. For example, in the third record,

N	= 3
TITLE	= Henry Howe, Chairman
COMPANY	= Mixed Reactions
ADDRESS1	= 12736B North Central Avenue
ADDRESS2	= New York, New York 10024
NAME	= Mr. Howe
LOCAL	= Queens

Because there are five records in your data file, five letters will be printed.

Printing the Form Letters

With your matrix letter and your data file completed, you are ready to begin printing:

1. When the " Opening " menu appears, type M to request a mailmerge.
2. Make sure your printer is ready to go, with the first page aligned correctly.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Mailing3 and
   a. If you are printing on continous form paper, press ESC (ESCAPE) to begin printing.
   b. If you are printing each letter on a separate sheet of stationery, press RETURN seven times, press Y for PAUSE FOR PAPER CHANGE BETWEEN PAGES (Y/N): ■, then press RETURN two more times to begin printing.

Now WordStar will print five letters on the printer, using the five lines of your data file to insert information into your matrix letter. You can see that WordStar made allowance for words of different lengths that had to be inserted, and reformed paragraphs when necessary. Note also that the first letter is identical to the letter you typed in Lesson 3.

Rules for Typing a Data File

Follow these rules whenever you type a data file:

- Use a non-document file
- Begin each record with a record number
- Separate fields with commas
- Use quotation marks around fields that contain commas of their own (type the closing quotation mark before the next comma)
- Never leave out a field; if you don't know what to enter, just type a blank space followed by a comma
- End each record by pressing RETURN
- Whenever possible, use DataStar to enter data files

If you should forget these rules and type the data file incorrectly, you could end up with letters that look like this:

July 22, 1981
Bill Somers
President
Beauty
Inc.

Dear 485 Alameda de las Guapas:

In reference to our conversation earlier today, I would like to meet with you as soon as possible. We must discuss all possibilities of merging President and Heavy Dealing.

Please call my secretary to set an appointment at your earliest convenience.

Sincerely,

Jim Winters, President
Heavy Dealing, Inc.

P.S. One item we have to be sure to cover when we get together is that plant we have over in Los Angeles. I need to hear what you think about this. Keep in touch.

JW/sl

NOTES

Lesson 16
Envelopes and mailing labels
(MailMerge option only)

In Lesson 15 you printed five form letters. In this lesson you will address envelopes to mail the letters in and prepare mailing labels for some accompanying mail.

Addressing Envelopes

To address envelopes for mailing your five letters, you can use the same data file with a different matrix. Here is how to type the new matrix:

1. Open a new file called "Envelop3":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Envelop3 and press RETURN.
2. When the file appears, type the information on the next page.
3. Read the comments to see what each command is used for. (The comments are not required, but are provided here to help you learn the commands.)
4. Press CTRL KD (^K^D) to save your file.

You now have a document file called "Envelop3" that you can use as a matrix to address your mailing envelopes one at a time. This matrix calls for an envelope height of 25 lines, a top margin of 15 lines, a left margin of 30 characters, and single-spacing. (To print with double-spacing, change the top margin to 10 and leave blank lines between the lines of addressing.) You are ready to print the envelopes:

1. When the "Opening" menu appears, type M to request a mailmerge.
2. Make sure your printer is ready to go, with the first envelope in position.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Envelop3 and press ESC (ESCAPE) to begin printing.
4. Press P each time you are ready to address a new envelope. (If you forget, look at the "Opening" menu, where you will see P = CONTINUE PRINT.)

```
.. File: ENVELOP3 (print envelopes from LIST3.DAT)
.. File: EN
..
.op      Turn off page numbering
.pl 25   Page length = 25 lines (ordinary envelope)
.mt 15   Allow a top margin of 15 lines
.mb 0    Allow no bottom margin (0 lines)
..
.df LIST3.DAT (the data file is LIST3.DAT)
..
..       Read these seven fields (variables),
..       one record at a time:
.rv N, TITLE, COMPANY, ADDRESS1, ADDRESS2, NAME, LOCAL
..       Press CTRL PC (^P^C) to insert ^C
..       (wait for the next envelope)
^C
                              &TITLE&
                              &COMPANY&
                              &ADDRESS1&
                              &ADDRESS2&
.pa      Roll envelope out of the printer   RETURN
```

When you have finished positioning the last envelope, WordStar will print and then return you to the " Opening " menu. You now have five mailing envelopes to match your five letters.

Printing Mailing Labels

To print single-column mailing labels for the people on your mailing list, you can use the same data file again with still another matrix. (To print multi-column labels, see Section 10 of the WordStar Reference Manual.) Here is how to type the matrix:

1. Open a new file called "Label3":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Label3 and press RETURN.
2. When the file appears, type the following information (the comments can help):

```
..      File: LABEL3 (print mailing labels from LIST3.DAT)
.op     Turn off page numbering
.pl 18  Page length = 18 lines (this may vary)
.mt 8   Allow a top margin of 8 lines
.mb 6   Allow a bottom margin of 6 lines
.df LIST3.DAT (the data file is LIST3.DAT)
.rv N, TITLE, COMPANY, ADDRESS1, ADDRESS2, NAME, LOCAL
        &TITLE&
        &COMPANY&
        &ADDRESS1&
        &ADDRESS2&
.. End of file  RETURN
```

3. Press CTRL KD (^K^D) to save a copy of your file.

You now have a document file called "Label3" that you can use as a matrix to print your mailing labels on a continuous roll. This matrix calls for a label height of 18 lines, a top margin of 8 lines, a bottom margin of 6 lines, a left margin of 10 characters, and single-spacing. (To print with double-spacing, change the top margin to 5, the bottom margin to 5, and leave blank lines between the the lines of addressing.) You are ready to print the labels:

1. When the "Opening" menu appears, type M to request a mailmerge.
2. Make sure your printer is ready to go, with the roll of labels in position.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Label3 and press ESC (ESCAPE) to begin printing.

Now WordStar will print five mailing labels to match your five letters and envelopes.

Combining Three Tasks into One

In Lesson 15 and this lesson you have printed a series of letters, followed by corresponding envelopes and mailing labels. Now you will learn how to combine all three of these tasks into one task. So far you have typed files with these names:

- MAILING3 (matrix for the letters)
- ENVELOP3 (matrix for the envelopes)
- LABEL3 (matrix for the mailing labels)

All three of these matrices drew from the same data file of names and addresses (LIST3.DAT). In this lesson you will type an additional matrix file to print your data file in a readable format. Then you will type a simple command file to have all four printed in succession.

As you have probably noticed, your data file of names and addresses is difficult to read. If you had to make any changes to it, you would not have an easy time finding anything. So why not print it in a more readable format and make your job easier? Here are the steps:

1. Open a new file called "Format3":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Format3 and press RETURN.
2. When the file appears, type the following:

```
.. File:  FORMAT3 (print a formatted mailing list)
.op       Turn off page-numbering
.pl 8     Set the page length to 8 lines
.mt 2     Set the top margin to 2 lines
.mb 2     Set the bottom margin to 2 lines
.cp 6     Set a conditional page break (6 lines)
.df LIST3.DAT
.rv N, TITLE, COMPANY, ADDRESS1, ADDRESS2, NAME, LOCAL
&n&           &title&
              &company&
              &address1&
              &address2&
.cs
.dm NOW PRINTING RECORD FOR &title&
.. End of file  RETURN
```

3. Press CTRL KD (^K^D) to save your file.

Typing a Command File

Whenever you want to combine several tasks into one, MailMerge allows you to type one special file, called a command file, to have these tasks performed for you. This command file will call the other files for you and print them in succession while you go on to some other work. Here are the steps for this particular command file:

1. Open a new file called "Combine3":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Combine3 and press RETURN.
2. When the file appears, type the following:

```
.dm     This program will perform four tasks in succession:
.dm     (1) print a series of letters, (2) print the envelopes
.dm     (3) print mailing labels, (4) print the data file
.dm     Task 1: Print the letters
.fi  MAILING3
.dm     Task 2: Print the envelopes
.dm                  Get the envelopes ready
.fi  ENVELOP3
.dm     Task 3: Print the mailing labels
.dm                  Put the labels into the feeder
..      Press CTRL PC (^P^C) to insert ^C
^C
.fi  LABEL3
.dm     Task 4: Print the mailing list
.dm                  Put the paper back into the feeder
..      Press CTRI PC (^P^C) to insert ^C
^C
.fi  FORMAT3
```

3. Press CTRL KD (^K^D) to save your file.

Running the Command File

Now that you have a command file, along with four files that are called by the command file, you are ready to start:

1. When the " Opening " menu appears, type M to request a mailmerge.
2. Make sure your printer is ready to go, with the paper in position.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Combine3 and press ESC (ESCAPE) to begin printing:
   a. The letters will be printed first, with no action required by you.
   b. After the last letter has been printed, you will have to begin inserting the envelopes one at a time, as indicated by screen messages.
   c. After the last envelope has been addressed, you will have to insert the roll of mailing labels during the next printing pause.
   d. After the last label has been addressed, change back to paper again during the printing pause.

After the mailing list has been printed, WordStar will return you to the "editing no file" menu. You now have five letters, five envelopes, five mailing labels, and a mailing list with five names on it.

Summary

The documents you have been typing to produce special printing all contain a number of three-character commands that begin with periods (dots). These are called dot commands. Here is a summary of the dot commands you have seen so far, and what they mean to WordStar:

..	"Ignore this line. This line is for comments (or to leave some open space in the file)."
.op	"Turn off page-numbering when you print this document."
.pa	"Go to a new page right here."
.cp	"Here is a number. If this number of lines won't fit on this page, move all of them to the next page."
.pl	"The length of each page of printing is as follows."
.mt	"Allow the following top margin on each page before printing anything."
.mb	"Allow the following bottom margin after printing one page."
.df	"The name of the data file for this matrix file is as follows." (MailMerge only)
.rv	"For each item to be printed, read the following fields (variables) from a record in the data file. You don't have to use all of them during printing." (MailMerge only)
.fi	"Insert the following file right here. In other words, print everything in that file here, then come back to this file to continue printing." (MailMerge only)
.cs	"Clear the open area of the screen." (MailMerge only)
.dm	"Display the following information on the screen." (MailMerge only)

Lesson 17

Typing reply letters

(MailMerge option only)

In Lesson 15 you typed a form letter that could be addressed to many different people. Each addressee got the same letter. Now you will learn how to type another kind of form letter, a reply letter. This time, you will not be mailing a large number of identical letters. Instead, you will be mailing only one letter at a time, but the wording may vary from letter to letter.

Preparing the Matrix Letter

Instead of converting a sample letter into a matrix letter by making substitutions, as you did in Lesson 15, you will type the matrix letter directly this time:

1. Open a new file called "Reply":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Reply and press RETURN.
2. Press CTRL OJ (^O^J) to turn off justification.
3. When the new file appears on the screen, type the following letter:
4. Press CTRL KD (^K^D) to save your file.

```
.. File: REPLY (prints a reply letter using RADIO, TV, or
..       STEREO for description)
.cs
.av  "Enter the file name (RADIO/TV/STEREO): ", FILENAME
.av  "Please enter today's date: ", DATE
..
.fi  HEADING              (standard letter heading and salutation)

     Thank you for your recent inquiry. The following features
are available for you to select from:

.fi  &FILENAME&

     We were happy to hear from you. We hope that our &PRODUCT&
will contribute to your &FUNCTION&. Let me know if I can be of
any further assistance.

                                Sincerely,

                                Henry L. ("Ham") Burger
                                Director of Marketing      RETURN
```

The Heading File

As you can see from looking at this letter, you are going to need several other files (HEADING, RADIO, TV, and STEREO) before you will be able to use it. We can begin by typing the heading file:

1. When the " Opening " menu appears, press D.
2. When the prompt NAME OF FILE TO EDIT? appears, type Heading and press RETURN.
3. When the new file appears on the screen, type the following:

```
.. File:  HEADING (provides the standard heading and salutation)
.av  "Addressee's name and title: ", TITLE
.av  "Addressee's company: ", COMPANY
.av  "Street address: ", ADDRESS1
.av "City, state, and zip: ", ADDRESS2
.av "Dear ", NAME
.cs

&TITLE&                                    &DATE&
&COMPANY&
&ADDRESS1&
&ADDRESS2&

Dear &NAME&:
.. End of file    RETURN
```

4. Press CTRL KD (^K^D) to save your file.

The First Product File

Next we go on to the three product files. One of these will be inserted as the middle paragraph of the reply. Here is the first one:

1. Open a new file called "Radio":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Radio and press RETURN.
2. When the new file appears on the screen, type the following:

```
..  File: RADIO (describes the AM/FM clock radio)
.sv  PRODUCT, AM/FM clock radio
.sv  FUNCTION, listening enjoyment
..
          o automatic tuning selection
          o AC/DC selection
          o choice of one of three wake-up methods
            * soft music
            * Chinese gong
            * "Stars and Stripes Forever"
.. End of file    RETURN
```

3. Press CTRL KD (^K^D) to save your file.

The Second Product File

Next we prepare the second product file:

1. Open a new file called "TV":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type TV and press RETURN.
2. When the new file appears on the screen, type the following:

```
.. File: TV (describes the portable color TV)
.sv  PRODUCT, portable color television
.sv  FUNCTION, viewing enjoyment
..
          o full channel selection
          o Big Rainbow color
          o choice of three sizes
            * portable
            * briefcase size
            * pocket size
.. End of file  RETURN
```

3. Press CTRL KD (^K^D) to save your file.

The Third Product File

Finally we prepare the third product file:

1. Open a new file called "Stereo":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Stereo and press RETURN.
2. When the new file appears on the screen, type the following:

```
.. File: Stereo (describes the stereo system)
.sv  PRODUCT, stereophonic system
.sv  FUNCTION, listening enjoyment
..
          o acoustic suspension speakers
          o Full stereophonic sound
          o Elliptical, 1.5-gram cartridge
          o choice of three colors
            * Brick Road yellow
            * Emerald green
            * Black and white
.. End of file  RETURN
```

3. Press CTRL KD (^K^D) to save your file.

Having the Reply Letter Printed

Now you have a matrix letter to answer inquiries about products, along with four accompanying files. Here is how to have a reply letter typed:

1. When the " Opening " menu appears, type M to request a mailmerge.
2. Make sure your printer is ready to go, with the paper in position.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Reply and press ESC (ESCAPE) to begin printing.
4. In reply to the prompt "Enter one file name (RADIO/TV/STEREO): ", type Radio and press RETURN.
5. Answer the remaining questions as indicated, pressing RETURN after each response:

```
Please enter today's date: June 15, 1981
Addressee's name and title: Mr. James V. Thompson
Addressee's company: Rampant Electronics, Inc.
Street address: 1307 Helsing Boulevard
City, state, and zip: Cupertino, CA 95014
Dear Mr. Thompson
```

6. WordStar will now print the letter, which should look like this:

Mr. James V. Thompson June 15, 1981
Rampant Electronics, Inc.
1307 Helsing Boulevard
Cupertino, CA 95014

Dear Mr. Thompson:

Thank you for your recent inquiry. The following features are available for you to select from:

- o automatic tuning selection
- o AC/DC selection
- o choice of one of three wake-up methods
  - * soft music
  - * Chinese gong
  - * "Stars and Stripes Forever"

We were happy to hear from you. We hope that our AM/FM clock radio will contribute to your listening enjoyment. Let me know if I can be of any further assistance.

Sincerely,

Henry L. ("Ham") Burger
Director of Marketing

7. Press the space bar to return to the "Opening" menu.
8. Repeat Steps 1-7, using either "TV" or "Stereo" in Step 4 and making up your own entries for Step 5.

Summary

First of all, you learned two more dot commands in this lesson, both used to tell WordStar what value to use for a field (variable):

.av "Ask the operator to type in this field (variable) at the keyboard."

.sv "Set this field (variable) to the following value."

You have three different ways of telling WordStar what value to use for a given field (variable): read a variable (.rv), ask for a variable (.av), or set a variable (.sv).

Here is a brief description of how WordStar prints this reply letter (look at the contents of the files earlier in this lesson while you are reading this):

1. After you request a mailmerge, REPLY asks you for a file name and today's date.
2. Then REPLY switches control over to HEADING. (It's as though everything in HEADING were typed in the middle of REPLY. This is called nesting.)
3. HEADING asks for the addressee's name and address and types them, along with the salutation, using the date that REPLY asked you for, then returns control to REPLY.
4. Next REPLY prints a short paragraph and turns control over to the file you named in Step 1 (RADIO, TV, or STEREO).
5. Since you named RADIO the first time, RADIO begins by setting PRODUCT to "AM/FM clock radio" and FUNCTION to "listening enjoyment," prints the features of the radio, and returns control to REPLY.
6. REPLY now prints the closing paragraph, using the values of PRODUCT and FUNCTION set by RADIO, then prints the signature line to conclude the letter.

Lesson 18
Chain-printing
(MailMerge option only)

In this lesson you will type three text files, representing three chapters of a book. Then you will type a command file that will print the three text files in succession. This is known as chain-printing, another way WordStar's MailMerge option can save you time and effort.

Typing the Text Files

You will begin by typing several pages from each of the first three lessons of this guide. Besides helping you learn chain-printing, this will give you a good review of the different things you have learned in this guide. Here's how to do this:

1. Open a new file called "Guide1":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Guide1 and press RETURN.
2. Type the first two sections of Lesson 1 of this guide ("The Keyboard" and "The Screen"), typing everything just as you see it.
   a. Here are some guidelines on spacing:
      (1) Leave three blank lines between the beginning of the file and "Lesson 1."
      (2) Leave two blank lines between the title and the first line of text.
      (3) Leave 13 blank lines between the end of the first paragraph ("... a little different.") and the figure caption ("Typical Keyboard").
   b. After the last sentence (which should be at the bottom of page 1), press RETURN three or four times to force a page break to page 2.
3. Press CTRL KD (^K^D) to save the file.
4. Open a new file called "Guide2":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Guide2 and press RETURN.
5. Type the first four sections of Lesson 2 of this guide ("Starting Your Computer," "Starting WordStar," "Stopping WordStar," and "Stopping Your Computer").
   a. Follow the format of Lesson 2, but type the procedures that apply to your own machine, rather than the procedures you find in Lesson 2 (if they are different).

b. This should fill about two and a half pages.

c. On a blank line after the last line of text, type .pa and press RETURN. To force a fourth page type .pa and press RETURN again.

6. Press CTRL KD (^K^D) to save the file.
7. Open a new file called "Guide3":
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Guide3 and press RETURN.
8. Type the opening paragraph and the first section of Lesson 3 ("Preliminary Adjustments"). This should fill a little more than one page.
9. Press CTRL KD (^K^D) to save the file.

Now you have three files (Guide1, Guide2, and Guide3), one for each of the three opening lessons of this guide. For this exercise, these represent only about five pages of typing. In actual practice, you may have dozens of files and hundreds of pages of typing.

Printing with Continuous Pagination

First you will type a command file that will cause the pages to be numbered continuously from lesson to lesson:

1. Open a new file called "Print01:"
   a. When the " Opening " menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Print01 and press RETURN.
2. When the file appears, type the following:

```
.. File: PRINT01
..
.fi  Guide1
.pa
.fi  Guide2
.pa
.fi  Guide3
..
..  End of file  RETURN
```

3. Press CTRL KD (^K^D) to save the file.

Each time you type an unconditional page command (.pa), WordStar will insert a page break in the command file, which you can ignore. For clarity, the page breaks are not shown here.

Note

The .pa command you typed at the end of Guide2 was to leave a blank page at the end of Lesson 2. (If you wanted to reproduce this printing on two-sided paper and you left a chapter with an odd number of pages, the next chapter would begin on the back of a sheet, instead of the front.)

Now you are ready to start printing:

1. When the " Opening " menu appears, type M to request a mailmerge.
2. Make sure your printer is ready and the paper is in position.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Print01 and press RETURN (not ESCAPE) four times.

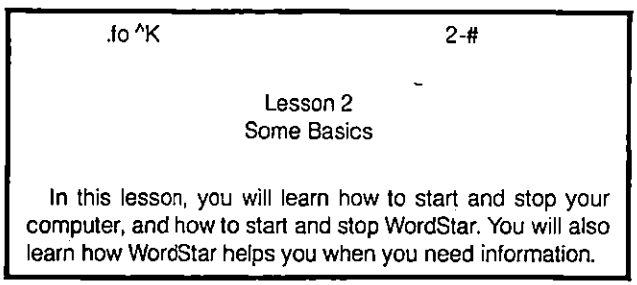
4. When the prompt NUMBER OF COPIES (RETURN for 1)? appears, type 2 and press RETURN four more times.

You should have two eight-page copies, numbered from 1 to 8, with each number centered at the bottom of the page.

Printing with Pagination by Chapters

Now you will print the same three files with another method of pagination. This time, the chapters will be paginated separately, with the first page of chapter 1 called 1-1, the second page called 1-2, and so on. In addition, the page numbers will be alternated from side to side.

1. Add a footing to each of the pages of "Guide1":
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Guide1 and press RETURN.
   c. When the file appears, press CTRL N to create a blank line at the beginning of the file.
   d. Type .fo^K at the left-hand margin, then type 1-# in columns 67-69. (Press CTRL PK to type ^K.)
   e. Press CTRL KD (^K^D) to save the file.
2. Repeat Step 1 for "Guide2" and "Guide3," using 2-# and 3-# in Step 1d in place of 1-#, as shown below.


.fo ^K
2-#
Lesson 2
Some Basics
In this lesson, you will learn how to start and stop your computer, and how to start and stop WordStar. You will also learn how WordStar helps you when you need information.

Top of Page 1 of Lesson 2

3. Open a new file called "Print02:"
   a. When the "Opening" menu appears, press D.
   b. When the prompt NAME OF FILE TO EDIT? appears, type Print02 and press RETURN.
4. When the file appears, type the following:

```
.. File: PRINT02
..
.fi Guide1
.pa
.pn 1
.fi Guide2
.pa
.pn 1
.fi Guide3
..
.. End of file RETURN
```

5. Press CTRL KD (^K^D) to save the file.

This file is the same as PRINT01, except for the page number commands (.pn 1), which tell WordStar to reset the page count to 1 before starting a new chapter. Once again, the page breaks are not shown here. Now you are ready to start printing:

1. When the "Opening" menu appears, type M to request a mailmerge.
2. Make sure your printer is ready and the paper is in position.
3. When the prompt NAME OF FILE TO MAILMERGE? appears, type Print02 and press ESC (ESCAPE).

You should have eight pages, numbered as follows: 1-1, 1-2, 2-1, 2-2, 2-3, 2-4, 3-1, 3-2. Also, the numbers should be alternated from side to side, with 1-1 on the right, 1-2 on the left, and so on.

Lesson 19
Check spelling
(SpellStar option only)

In this lesson, you will learn how to "proofread" everything you write with WordStar. You will practice checking for misspellings and typos automatically, correcting the errors, and setting aside words to add to your on–disk dictionary or dictionaries. (Your WordStar program must have the SpellStar option to perform these operations.)

This lesson and Lesson 20 (about maintaining SpellStar's dictionaries) assume you are using disks of about 240 kilobytes. If you are using smaller capacity disks, you will need two disks and will have to take that into account when following these instructions.

Starting SpellStar

SpellStar needs WordStar to run, so first you must get WordStar started:

1. Start your computer. (If you don't know how to do this, refer to Lesson 2 of this Training Guide.)
2. Start WordStar, logged on the A: drive. (You can refer to Lesson 2 for instructions on this also.)
3. Put a blank disk into drive B:.
4. When the " Opening " menu appears on your screen, press S to "Run SpellStar."
5. When the prompt NAME OF FILE TO CHECK / ADD TO DICTIONARY? appears, type A:SAMPLE.TXT and press RETURN. ("SAMPLE.TXT" is a file that comes with SpellStar; you'll use it to do a spelling check.)

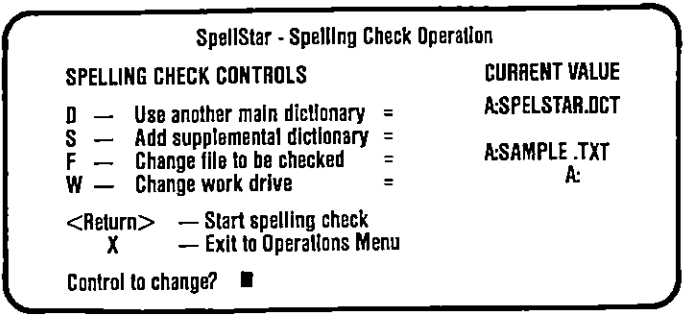
The Operations Menu

Next you will see SpellStar's Operations Menu, from which you can choose to run a spelling check or do dictionary maintenance. (You can also return to WordStar's " Opening " menu at this point.)

```
OPERATIONS

C  - Check spelling
M  - Maintain dictionary
X  - Exit to WordStar " Opening "

Operation? ■
```


SpellStar - Spelling Check Operation
SPELLING CHECK CONTROLS
CURRENT VALUE
D — Use another main dictionary =
A:SPELSTAR.DCT
S — Add supplemental dictionary =
F — Change file to be checked =
A:SAMPLE .TXT
W — Change work drive =
A:
<Return> — Start spelling check
X — Exit to Operations Menu
Control to change?

In this lesson, you'll run a sample spelling check, so

1. Press C, for "Check Spelling."
2. Now a menu titled "Spelling Check Controls" will appear. You will use the controls on this menu to define the check.

Setting Up Spelling Check Controls

The controls needed for each spelling check are the names of a dictionary and a file to be checked, and the letter of a work drive. You may name a supplemental dictionary if you wish, but it's not required.

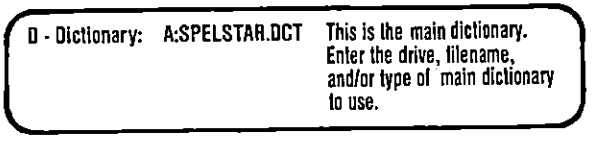
When the Spelling Check Controls menu first appears, it tells you the names ("current values") of the dictionaries, file, and work drive SpellStar will use unless you change them.

If you liked the way the controls were set up, you could just press RETURN and SpellStar would begin checking the file named.

Changing the Main Dictionary

This time, let's see how you use the controls to design a spelling check the way you want it. You'll use these same methods later to change other controls in SpellStar.

1. In response to the prompt "Control to change?", press D.
2. The following message appears on the screen below the Controls menu:



SPELSTAR.DCT is the 20,000-word dictionary that is "standard equipment" with SpellStar. It is based on the American Heritage dictionaries, published by Houghton Mifflin Co. Most of the time you'll find it quite sufficient.

When the Spelling Check Controls menu first appears on the screen, the current value of the main dictionary will always be SPELSTAR.DCT on the logged disk drive. (Note that the main dictionary can be on either drive, as long as you identify its location for SpellStar.) Let's pretend SPELSTAR.DCT is on the B: drive.

1. The cursor is on the first character—the drive letter— of the dictionary name. Type B: and press RETURN. (You must always press RETURN after typing in your change.)
2. Notice that on the Controls menu the current value of the main dictionary is now B:SPELSTAR.DCT.

You've just told SpellStar that the main dictionary to use, SPELSTAR.DCT, is on the B: drive.

With the "D" control, you can replace SPELSTAR.DCT with another main dictionary entirely. SpellStar will use any dictionary you name that has been organized properly. (We'll discuss in Chapter 20 how you and SpellStar do that.)

Let's suppose you have a dictionary file called "HERITAGE.DCT" that you want to use.

1. Press D. The message you saw before appears below the Controls menu. The cursor is on the first character.
2. Type HERITAGE, and press RETURN. (You can type HERITAGE in upper or lower case; it doesn't matter. If you make a mistake, backspace with the "backspace" key or CTRL H (^H) and correct it.)

Notice that the new current value for main dictionary reads B:HERITAGE.DCT.

Even though you typed in "HERITAGE" beginning at the first character of the previous dictionary's drive letter and name, SpellStar put "HERITAGE" in the proper place. SpellStar recognizes which part of the value you're entering and inserts it correctly.

Try this now with the dictionary name's extension, changing it to ".EXT."

1. Press D.
2. Type .DCN, and press RETURN.

The current value for main dictionary is now B: HERITAGE .EXT .

As you've just seen, you can change the drive, filename, or extension of the main dictionary as individual elements.

You can also change the entire value all at once, simply by entering the drive letter (with colon following), the filename, and the extension (with period preceding).

You can erase any element of the current value—the drive, filename, or extension—by using the "#" key. Let's try that.

1. Press D.
2. Type #, and press RETURN.

The current value of the main dictionary should now read

B: .EXT.

You can erase the entire value for any control (except the work drive) with the space bar, if you prefer, before entering a new value.

To begin a spelling check, you must have values for the main dictionary, file to be checked, and work drive. So if you erase either the main dictionary or the file value and leave a blank, you'll have to enter a value before SpellStar will let your command to begin the spelling check take effect.

The methods with which you've just experimented in naming a main dictionary will apply to many other controls in SpellStar.

Since you want to proceed now with setting the other controls for your sample spelling check, let's change the main dictionary value back to A:SPELSTAR.DCT.

1. Press D.
2. Type A:SPELSTAR.DCT, and press RETURN.

Adding a Supplemental Dictionary

With SpellStar, you can use more than one dictionary during a spelling check. Using a main dictionary plus a supplemental dictionary to check a document may catch many more errors.

Suppose you've just finished typing a contract with many legal terms. SpellStar can use a supplemental dictionary of legal terms, in addition to the main dictionary, to check your contract. (You can buy specialized dictionaries or create your own with SpellStar.)

Another useful supplemental dictionary might contain names and addresses of your company's clients. The dictionary wouldn't help you connect the right name with the right address, but it could tell you if the name, street, city, and state were spelled correctly.

You enter or change the supplemental dictionary's name the same way you did the main dictionary's. The only difference is that if you erase the entire supplemental name by pressing the space bar, SpellStar will let you begin a spelling check without a supplemental dictionary. Entering a supplemental value is always an option.

Even though we won't use a supplemental dictionary to check spelling in SAMPLE.TXT, let's look at the control to "add supplemental dictionary."

1. Press S.
2. Read the prompt, then press RETURN.

Notice that pressing RETURN left the value unchanged. In this case, the value was blank, but in this and other SpellStar controls, RETURN will always leave the value unchanged, whether that value is a blank or a name you entered earlier.

Changing the File to be Checked

On the Controls menu, you see that the current value of the file to be checked is SAMPLE.TXT. This is the name you entered at the "Opening" menu, when SpellStar asked you NAME OF FILE TO CHECK / ADD TO DICTIONARY?

If you wanted to change the file value, you'd press "F" and enter the new filename just as you entered new information for the value of the main dictionary.

You'll find this control especially handy in cases where you run spelling checks on several files at once before correcting the errors SpellStar has flagged in any of them.

This time, you'll leave SAMPLE.TXT as the file to be checked, so you needn't do anything.

Changing the Work Drive

In WordStar, we use the term "work drive" generally to mean the drive to which your work is directed for storage.

But in SpellStar, "work drive" has a different meaning. During spelling checks, SpellStar creates its own temporary sorting files containing words from your document.

The "change work drive" control lets you tell SpellStar where to put its temporary files. The critical factor in your decision is the space available on either disk.

The sorting files take up about the same amount of space as your document file. You should always find out how large your document is and check to see if the sorting files will fit on the same disk. This is especially important when you're checking a large file.

Unless you have a lot of files on your boot disk, you should have enough space to put the sorting files there. (SAMPLE.TXT's size is only 4K.) However, you have a blank disk in the B: drive, so to play it safe, use B: for the work drive.

Note

To see your document's size - and how much space is left on your disk, you run a status check from the "opening" menu. If you needed to do it now, you would have to enter "X" to go back to the SpellStar Operations Menu, and exit using "X" from there to WordStar. (This won't hurt anything, but you'll lose a little time.)

To get back to this point in your check, you would press S at the "opening" menu, and enter the name of the file you're checking and press RETURN. Then press C at the Operations Menu.

Changing the work drive is very simple.

1. Press W.
2. Type B. (This time you don't have to press RETURN.)

Now the controls for your sample spelling check should look like this:

```
        SPELLING CHECK CONTROLS                CURRENT VALUE

   D  - Use another main dictionary =          A:SPELSTAR.DCT
   S  - Add supplemental dictionary =
   F  - Change file to be checked =            A:SAMPLE .TXT
   W  - Change work drive =                          B:

 <Return>  — Start spelling check
     X     — Exit to Operations Menu
```

If your screen looks different, use what you've learned to change the controls so that they match these.

Running a Sample Spelling Check

Now, if you want, you're ready to run the spelling check on SAMPLE.TXT.

On the other hand, you could change your mind. If you decided you would rather do dictionary maintenance or go back to WordStar, you'd simply press "X" and find yourself back at SpellStar's Operations Menu. If you decide to abandon the spelling check here, on SAMPLE.TXT or any other file, you won't hurt anything. When you return to this point, it will look just as you left it, as long as you haven't exited to WordStar before returning.

We do want to perform a spelling check, though, so let's go.

1. Press RETURN.
2. Watch the screen display change to reflect what SpellStar's finding in SAMPLE.TXT.

```
SpellStar is now checking your document for misspelled words.
Number of words in document ..... :422
Number of different words ..... :261
Number of words in main dictionary .... :20863
Number of words in supplement ..... :
Number of dictionary words checked .... :8733
Number of misspelled words ..... :28
Total number of misspellings ..... :
```

The first thing SpellStar does is count the total number of words in your document; the total appears on the first line of the screen display.

Then it tells you how many of those words are "different"; after you throw out the duplicates, how many unique words are left? That total appears on the second line.

This calculation is useful if, for instance, you are writing something technical for non-technical people. A proportionately high number of different words indicates too much jargon.

In the third and fourth lines of the on-screen summary, SpellStar tells you how many words are in the main and supplemental dictionaries you specified for this check.

The changing number on the fifth line, "Number of dictionary words checked," lets you know how far SpellStar has gotten with your spelling check.

After SpellStar counts the words in your document, it sorts them by length and alphabetically and compares them to the words in the dictionary, which is organized the same way. As it compares, it tells you how many dictionary words it has gone through, by thousands.

By seeing how long SpellStar takes to get through a thousand words, you'll know approximately how long it will take to check your entire document. The more words in your document, the longer it takes to check. You can go do something else while the machine checks a long document, and come back when it's finished.

Next, SpellStar tells you how many different words are misspelled. A "misspelled" word is any word that doesn't match up with a word in the dictionary or dictionaries you've specified. So SpellStar flags misspellings, typos, and all other words not in the dictionary or dictionaries.

SpellStar won't fill in the last line, "Total number of misspellings," until later.

When SpellStar has finished its check of SAMPLE.TXT, it pauses to let you decide what to do next.

At this point, SpellStar has not yet actually flagged the errors within the text of SAMPLE.TXT. Before you tell SpellStar to do that, you can elect to see listed on the screen all the misspellings, typos, and words unmatched in the dictionary; or you can leave the spelling check at this point without affecting your file.

SpellStar shows you the choices below the on-screen summary:

```
SpellStar has completed proofreading your document.
     Enter "L" to list the misspelled words.
     Enter <Return> to flag errors in your text.
     Enter "R" to abandon the check and restart.
```

Let's list the misspelled words.

1. Press L.
2. Your screen should look like this:

```
AA CH WS SAN ATTN DISCO TOM'S TYPOS WIT'S WRKNG BILOXI CALVIN DISCOS
RAFAEL SURVAY KEYTOPS MAUREEN HOTSTUFF JUMPSUIT ONSCREEN PROGRAMM
HICCUPING WHISKEY'S WORDSTAR'S FREEWHEELING CORESPONDENCE INTERNATOINAL
INSUBODRINATION

Enter <Return> to flag errors, "R" to restart.
```

You can see the kinds of words that aren't in SpellStar's dictionary: abbreviations (AA, ATTN); slang (DISCO); proper names (RAFAEL, MAUREEN); variations on root words ("hiccup" is in the dictionary, but HICCUPING isn't). And, most important — misspelled and mistyped words (WRKNG, INTERNATOINAL).

You don't see state names or most plurals from SAMPLE.TXT on the list because SpellStar's dictionary includes names of all the states in the U.S. and the plurals of most common nouns.

(Remember that at this point SpellStar has not yet flagged these words in your document; once you're using SpellStar in your day-to-day work, if you saw words on this list you thought were in your dictionary [either main or supplemental], you could go back and check whether you'd used the right dictionary. To do this, you'd press "R" to go back to the Operations Menu, then "C" to look at your controls. You could change the dictionary or dictionaries in use, if necessary, and re-do the spelling check. As usual, you wouldn't hurt your document file if you left it now.)

Now that you've seen the errors listed, tell SpellStar to go ahead and flag those errors in the text of SAMPLE.TXT.

1. Press RETURN.
2. Now see that SpellStar removes the word list, fills in a number on the last line in the checking summary, "Total number of misspellings," and shows you a new prompt at the bottom of the screen.

SpellStar has flagged the misspellings in the text.

Enter < Return > to correct errors in text, "R" to restart.

In SAMPLE.TXT 28 different words are misspelled, and when SpellStar adds up all the occurrences of these words, it finds 35 total misspellings.

You have two choices now: to proceed with correcting the errors in SAMPLE.TXT, or to exit with "R" from the spelling check and go back to SpellStar's Operations Menu.

Correcting Errors in the Text File

You want to go ahead with correcting errors in SAMPLE.TXT, so

1. Press RETURN.
2. Watch SAMPLE.TXT appear on the screen, with SpellStar's menu of correction commands above it.

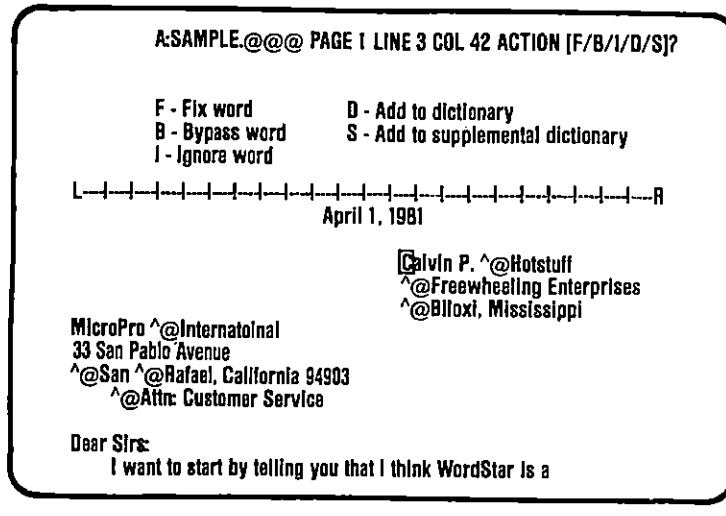
The cursor is flashing at the first flagged error, the name "Calvin" in the return address, indicating that it's either misspelled or not in SpellStar's dictionary.

Notice that other words in the text are flagged with "@." When the cursor lands on a flagged word, the flag disappears and the word may be either highlighted or dimmed, depending on the kind of terminal you have.

If you worked for Freewheeling Enterprises, you might have a supplementary dictionary with the names and addresses of company employees. If you used that dictionary to check the letter, then SpellStar wouldn't flag Calvin P. Hotstuff and his address. Let's create such a supplemental dictionary, and add Calvin's name and address to it.

Setting Aside Words to Add to a Dictionary

1. Press S for "Add to supplemental dictionary." When the prompt Add to Supplement: CALVIN (Y/N)? appears, press Y.
2. Now the cursor moves onto the next "misspelled" word— "Hotstuff." Press S to add it to the supplement. Press Y in response to the prompt.
3. Press S at the next two words "Freewheeling" and "Biloxi," also. Press Y in response to the prompts.


A:SAMPLE.@@@ PAGE 1 LINE 3 COL 42 ACTION [F/B/I/D/S]?
F - Fix word
B - Bypass word
I - Ignore word
D - Add to dictionary
S - Add to supplemental dictionary
L R
April 1, 1981
Calvin P. ^@Hotstuff
^@Freewheeling Enterprises
^@Biloxi, Mississippi
MicroPro ^@Internatoinal
33 San Pablo Avenue
^@San ^@Rafael, California 94903
^@Attn: Customer Service
Dear Sirs:
I want to start by telling you that I think WordStar is a

Now you come to the first truly misspelled word, "Internatoinal". To correct the spelling . . .

1. Press F for "Fix word."
2. Now you are in WordStar's edit mode. All the WordStar commands are available to you to correct the misspelled word and to change anything else in the document you want. WordStar's main help menu appears at the top of the screen.

   Change "Internatoinal" to "International."

Now, if you didn't know the correct spelling of "International", you would have to look it up in your dictionary. SpellStar can't tell you the correct spelling of a word.

Let's continue:

1. In order to get out of WordStar's edit mode and move the cursor to the next flagged word, "San", press CTRL L (^L).

   Whenever you do a "Fix word", follow it with CTRL L (^L).
2. "San" is next. We don't want to put this word in our main dictionary or our supplement, so we'll tell SpellStar just to ignore this word and go on to the next one. Press I for "Ignore word."
3. The cursor goes to "Rafael." Press I, for "Ignore word."
4. "Attn" is next. This may be a word you want to put in the dictionary, if you use it a lot. Right now, let's tell SpellStar to bypass this word, and we can come back to it later to make a decision. Press B for "Bypass word."
5. "Programm": Press F for "Fix word" and correct spelling to "program." Press CTRL B (^B) to rejustify the paragraph. Then press CTRL L (^L) to go on to the next flagged word.
6. Notice that SpellStar stops in the middle of the word "hard-wrkng." SpellStar takes compound words like this and treats them like two separate words. Press F for "Fix Word" and change "wrkng" to "working." Press CTRL L (^L).

7. "Programm": Press F for "Fix Word" and correct. You corrected this word when it appeared in the letter the first time, but SpellStar doesn't remember the correct spelling for you, so you must do it again. Press CTRL B (^B) to reformat the paragraph. Press CTRL L (^L).

Notice that the next word the cursor jumps to is "disco." Look at the paragraph above. The word "survay" in the last line is flagged, but SpellStar skipped it, because reformatting the paragraph took the cursor past this word. CTRL L always takes you to the next flagged word forward from the cursor.

Don't worry about correcting "survay." We'll get back to it later. Let's go on.

1. "Disco": Press D for "Add to dictionary." Press Y when Y/N prompt appears.
2. Press D at the next two words, "jumpsuit" and "discos." Press Y when Y/N prompt appears.
3. Press I at the next two words, "Maureen" and "Whiskey's," and watch the screen carefully as you do.

Observe that the cursor stops briefly at the word "Disco" in "Whiskey's Disco City," removes the flag, then moves on to the next flagged word. That's because you already told SpellStar to add "disco" to the dictionary the first time it appeared. SpellStar can remember "ignore" or "add" instructions for approximately 15 words at a time.

SpellStar did, however, stop at "discos," even though you'd already told it to add "disco" to the main dictionary. It treats plurals and other variations of words as separate words.

The cursor should now be at the word "typos." Let's add this word to our main dictionary.

1. Press D. Press Y in response to the prompt.
2. The next word, "corespondence," is hyphenated with a WordStar soft hyphen. SpellStar ignores soft hyphens, joining the two parts of the word into one. Press F for "Fix word" and correct the spelling to "correspondence." Press CTRL B (^B) to reformat the paragraph. Press CTRL B (^B) two more times in response to the hyphenation prompt. Press CTRL L (^L).
3. Press I for "Ignore word" at the next six flagged words: "keytops," "hiccuping," "Tom's," "wit's," "WordStar's," and "onscreen." Two of these words ("wit's," "WordStar's") are possessive forms of words already in the dictionary. SpellStar treats them as different words.
4. "Insubodrination": Press F for "Fix word" and correct spelling to "insubordination." You don't need to reformat, since you haven't changed the number of characters in the line. Press CTRL L (^L).
5. Press I for "Ignore word" until you are at the end of the letter.
6. When the message "Spelling Check Completed *** Press ESCAPE key" appears, press ESCAPE.

You see on the screen the end of SAMPLE.TXT. SpellStar is waiting for you to "save" the edited file with CTRL KD (^KD).

But first—remember the word you bypassed and the word SpellStar skipped over when you reformatted a paragraph? You'll go back and take care of them now. It's always a good idea to go back over your document a second time to make sure you've caught everything, so

1. Press CTRL QL (^Q^L).

2. When the prompt RETURN = search forward. B = search backward. appears, press B.

3. The cursor will land at "survay." Press F for "Fix word" and correct the spelling to "survey." Press CTRL L (ëL) to find any other flagged words.

4. The cursor now goes to "ATTN", the word we told SpellStar to bypass. Press D to add it to your dictionary. and press Y when the Y/N prompt appears.

You are now back at WordStar's opening menu.

5. When the prompt "Spelling Check Completed *** Press ESCAPE key" appears, press ESCAPE.
6. Now press CTRL KD (^K^D) to save the file SAMPLE.TXT.

SAMPLE.TXT now contains the corrected version of Calvin Hotstuff's letter. The back-up file, SAMPLE.BAK, contains the letter as it was before you corrected it.

Print a copy of SAMPLE.TXT, so you can see for yourself that all the errors have been fixed.

1. Check to see that your printer is on, and ready to begin printing.
2. Press P, to print a file.
3. In response to the prompt NAME OF FILE TO PRINT? type SAMPLE.TXT.
4. Press ESCAPE to begin printing.

If you want to use the SAMPLE.TXT letter to practice this lesson again, do the following:

1. Press Y, to delete a file.
2. Respond to the prompt NAME OF FILE TO DELETE? by typing SAMPLE.TXT. Press RETURN.
3. Press E, to rename a file.
4. Respond to the prompt NAME OF FILE TO RENAME? by typing SAMPLE.BAK, and press RETURN.
5. Respond to the prompt NEW NAME? by typing SAMPLE.TXT.
6. Press Y, to delete a file.
7. Respond to the prompt NAME OF FILE TO DELETE? by typing SAMPLE.ADD, and press RETURN.

SAMPLE.ADD is the file created by SpellStar for the words you decided to add to a dictionary or ignore. If you didn't delete it, you would have trouble practicing this lesson again.

Lesson 20
Dictionary maintenance
(SpellStar option only)

Now you will learn to update dictionaries and to create new dictionaries with SpellStar. You will use a file that SpellStar created containing the words from SAMPLE.TXT that you decided to add to the dictionary, during Lesson 19.

What Is Dictionary Maintenance?

In Lesson 19, when you made corrections to SAMPLE.TXT, you asked SpellStar to add several words to the main dictionary or to a supplemental dictionary. SpellStar put all those words into a file it made up and called SAMPLE.ADD. (After your spelling check on SAMPLE.TXT, you probably saw SAMPLE.ADD on your file directory.)

Dictionary maintenance in SpellStar is actually a two-step process. First a word file is created, by you or SpellStar.

The word file may contain words for updating, adding to, or deleting from) a dictionary; or it may contain words to create an entirely new dictionary. Most of the time the word file will be the ".ADD" file that SpellStar creates during a spelling check.

You can also create a brand new word file in the edit mode of WordStar, simply by making a list of words. Or, you could decide you want all the words in a certain document to be in the dictionary, and make that document the word file.

You can also buy a disk containing a main dictionary or a specialized dictionary and use that as your word file.

However the word file is created, it must go through the second step of the dictionary maintenance process to actually be integrated with existing dictionaries or to be organized in the proper format for SpellStar to use.

Now you'll practice several kinds of dictionary maintenance. We'll start with adding words to the main dictionary.

Dictionary Maintenance Controls

1. Put a blank disk in drive B:.
2. Go to WordStar's " Opening " menu and press S to get SpellStar.
3. When the prompt NAME OF FILE TO CHECK / ADD TO DICTIONARY? appears, type A:SAMPLE.ADD.

4. When the SpellStar Operations Menu appears, press M for "Maintain dictionary."
5. Take a look at the Dictionary Maintenance Controls Menu.

```
                SpellStar — Dictionary Maintenance

        DICTIONARY MAINTENANCE CONTROLS          CURRENT VALUE
F —  Change word file to use                  = A:SAMPLE  .ADD
D —  Change dictionary to update              = A:SPELSTAR.DCT
U —  Change name of new or updated dictionary = A:
W —  Change work drive for sort               =        A:

        DICTIONARY MAINTENANCE OPTIONS
N —  Create a new dictionary                  = NO
A —  Add words                                = NO
T —  Delete words                             = NO
C —  Combine add/delete                       = YES
S —  Use "S" words from .ADD file             = NO
L —  List dictionary words                    = NO

     <Return> —  Start dictionary maintenance.
        X     —  Exit to Operations menu

Control or option to change? ■
```

As in the spelling check step of SpellStar, if you like the way the current values are set up, you can go right to the Maintenance Options.

In this practice session, however, we'll make some adjustments to the controls. These tell SpellStar exactly which file contains the words to use, which dictionary to apply those words to, whether you want the resulting dictionary to be renamed, and where SpellStar should put its temporary sorting files.

The techniques you'll use to change the dictionary controls are the same ones you used for the spelling check controls.

You can change the drive, filename, or extension separately or in combination just by typing in new information over what's already there. Use the '#' key to blank out any portion of the control. Use the space bar to cancel the entire control; and press RETURN alone to leave the control unchanged.

First, take a look at "word file to use."

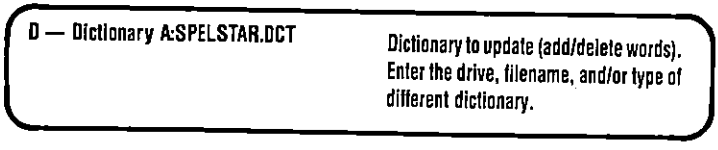
1. Press F.
2. Read the prompt at the bottom of the screen.

```
F — File:A:SAMPLE.ADD        This is the current input file. Enter the
                             drive, filename, and/or type of the
                             input file to use.
```

Since the current value is already SAMPLE.ADD, press RETURN to leave it unchanged. Go on to the next control.

The "dictionary to update" can be either a main or supplemental dictionary that you want to add words to or delete words from. (If you were creating an entirely new dictionary, you'd leave this value blank.)

1. Press D.
2. Read the prompt at the bottom of the screen.


D — Dictionary A:SPELSTAR.DCT
Dictionary to update (add/delete words). Enter the drive, filename, and/or type of different dictionary.

When SpellStar first shows you the controls, it will show SPELSTAR.DCT on the logged disk drive as the default value for this control. It happens to be the dictionary we want with the correct drive location, so we'll leave it alone. Press RETURN to leave the value unchanged.

The "new or updated dictionary" is the one SpellStar creates during this maintenance run. It will be either a completely new dictionary or an old one with words added or deleted. If you wanted to update an existing dictionary, without changing its name or location, then you'd leave this control blank. (If you were sure that the disk with the "dictionary to update" had enough extra space to accept the temporary dictionary file that SpellStar creates during updating. More about this in the next page's Note.) The result would be one updated dictionary on the logged disk drive.

If you wanted to update a dictionary and put its updated version on a different drive, then you'd enter the new drive letter, including the colon following. SpellStar would save the old dictionary where it was and put the updated one where you told it to. The result would be two dictionaries on different drives, each with the same name.

You could also give an updated dictionary a new name, with SpellStar, saving the old one, simply by entering the new name with the "new or updated dictionary" control.

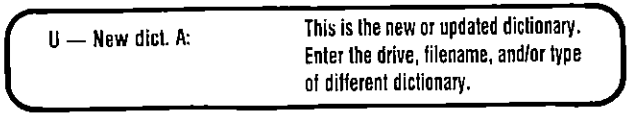
Note

Whenever you do an updating maintenance run, make sure you have extra disk space equivalent to the size of your original dictionary. SpellStar needs this space for either a temporary dictionary file or for the dictionary you've specified with U, for "new or updated dictionary". You can find out how much space you have by running a status check from WordStar's opening menu. If you'd reached this point in dictionary maintenance without checking your disk space, you could hit "X" to go to SpellStar's Operations Menu, then hit a second "X" there to go to the "opening" menu. As usual, you wouldn't hurt your file or your dictionaries if you chose to exit at this point.

For this practice run, you do not need to check disk space, since you will be putting your updated dictionary on the blank disk in your B: drive, as a guarantee you'll have enough disk space.

Now you'll tell SpellStar to rename the updated dictionary and put it on the B: drive.

1. Press U, for "Change name of new or updated dictionary."
2. Read the prompt at the bottom of the screen.



3. Type B:SPELSTAR.NEW, and press RETURN. (If you make a mistake here, or in typing any other value, backspace over it with the "backspace" key or CTRL H (^H) and type over it.)

Now for "Change work drive for sort." Just as in the spelling check step, SpellStar uses temporary files to sort the words in your word file. With the "change work drive for sort" control, you can decide where you want those files to go. They will disappear when the maintenance run is over, but you must have space for them while SpellStar is using them. Combined, they are roughly equivalent to the size of your word file.

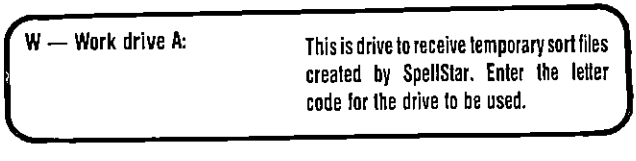
Note

Once again, in order to know which of your disks has enough space to accept the temporary sorting files, you would have to run a status check from WordStar's "opening" menu.

You will not need to check disk space for this practice run, since you will be using the blank disk in B: for a work disk.

For this practice run, the work drive should be B:

1. Press W.
2. Check the prompt at the bottom of the screen.


W — Work drive A:
This is drive to receive temporary sort files created by SpellStar. Enter the letter code for the drive to be used.

3. Type B to change the work drive. You do not need to press RETURN.

The current values for the controls on this dictionary maintenance run should look like this:

```
SpellStar — Dictionary Maintenance

F — Change word file to use                    = A:SAMPLE .ADD
D — Change dictionary to update                = A:SPELSTAR.DCT
U — Change name of new or updated dictionary   = B:SPELSTAR.NEW
W — Change work drive for sort                 =       B:
```

Dictionary Maintenance Options

Now you'll go on to check that SpellStar is ready to perform the maintenance operation you want. The next section of this menu lists all the actions to choose from.

```
        DICTIONARY MAINTENANCE OPTIONS
N — Create a new dictionary                    =   NO
A — Add words                                  =   NO
T — Delete words                               =   NO
C — Combine add/delete                         =   YES
S — Use "S" words from ".ADD" file             =   NO
L — List dictionary words                      =   NO

<Return> —    Start dictionary maintenance.
    X —       Exit to Operations Menu

Control or option to change? ■
```

In this run we are going to add words to the main dictionary, so leave the value for "create a new dictionary" as NO, and go on to Option A.

1. Press A for "Add words."
2. Read the prompt at the bottom of the screen.

```
A — Add words NO    Add all words from the input file to the
                    dictionary. Enter<Y>es or<N>o.
```

3. Press Y for "yes."

Notice on the Options menu that when you do this, the "YES" next to "Combine add/delete" becomes "NO". SpellStar starts out with a default value of "YES" for the "Combine add/delete" operation, but when you choose to do something else it automatically switches to "No."

Bypass T for "Delete words," thus leaving its value as "NO".

And bypass C for "Combine add/delete," leaving its value as "NO."

Bypass S for "Use "S" words from ".ADD" file," too; for this step, we want SpellStar only to add the "D" words from SAMPLE.ADD to the main dictionary.

SpellStar selects only the right ones—those "marked" with a "D" during corrections to SAMPLE.TXT - even though the SAMPLE.ADD file now contains words that you specified for both a main and a supplemental dictionary.

Your last action is to tell SpellStar to list the words it found in SAMPLE.ADD to add to the main dictionary, while it's updating your dictionary. It will also list the words in the updated dictionary. Let's see how that works.

1. Press L for "List dictionary words." Read the message at the bottom of the screen.
2. Press Y, in response to the Y/N prompt.
3. Everything is ready to go. So press RETURN.

Here's what you should see on the screen:

```
SpellStar is now creating or updating your dictionary:

     Number of words in word file .....: 5
     Number of different words in word file .....: 5
     Number of words in dictionary being updated. :
     Number of words added to dictionary .....:
     Number of words deleted from dictionary ...:
     Number of words in new or updated dictionary:

                [List of update words]

ATTN DISCO TYPOS DISCOS JUMPSUIT


Enter <Return> to proceed, "R" to restart.
```

First, SpellStar counts the "D" words in your file; then on the second line it tells you how many of those are different words. (Often those two numbers will be the same, but when you use a document for a word file, or add the same words more than once, there will be duplicate words, and the numbers will be different.)

SpellStar will fill in the other numbers later.

Below the summary, SpellStar lists the words it will add to the dictionary.

(Once you're using SpellStar regularly, you'll find this listing of words to be a handy double-check. When SpellStar shows you the list, you can make sure these are really the words you want added to the dictionary. If they are not, you can

press R for "restart", which will take you back to the SpellStar Operations Menu. From there, you can go to the Maintenance Controls menu and choose another word file.)

You do want to add these words, so

1. Press RETURN, to proceed with dictionary maintenance.
2. Watch the numbers appear in the remaining lines of the on-screen summary.

Now SpellStar will begin to list, by screenful, the words that will be in your dictionary after it's updated by this run. SpellStar stops updating for as long as you want to look at this list. When you're ready, you can go on to the next screenful of words, or you can make the list scroll continuously. You can also stop listing words entirely and SpellStar will go on updating.

The message line under the listing shows you the commands to see the next screenful, to make it scroll continuously, or to stop it.

1. Press SPACE BAR, and look at the next list of words.
2. Press C to make the list scroll continuously.
3. Press CTRL L (^L) to stop the list.

Now SpellStar goes ahead with the update. Notice that the updating goes faster when the listing is stopped. If at any point you want to begin listing words again, just press CTRL L (^L) again and it will pick up wherever SpellStar is in the dictionary.

(Notice that the words in the dictionary are arranged alphabetically by length of word. So if you are looking for a word in your dictionary, count the letters and look for it among words of that length.)

The numbers flashing by in the third and sixth lines of your on-screen summary tell you how many dictionary words SpellStar has gone through in its updating process, and how many words it has added or deleted.

When SpellStar has finished adding words to the dictionary, it will show you this message below the summary:

```
SpellStar has completed the dictionary maintenance.
Enter RETURN to return to WordStar, "R" to restart.
```

You can exit to WordStar's "opening" menu by pressing RETURN, or go to the Operations Menu with "R" if you want to do another spelling check or maintenance procedure.

In this case, you press "R" to go back to SpellStar's Operations Menu, since you're going to practice another maintenance run.

Remember that SAMPLE.ADD still contains words that you decided, during the spelling check of SAMPLE.TXT, you wanted to add to a supplemental dictionary containing names of employees of Calvin Hotstuff's company.

Of course, you knew at that time that such a dictionary didn't exist. Now you'll create a new supplemental dictionary called EMPLOYEE.SUP, using the words you "marked" with an "S" in SAMPLE.TXT.

Creating and Updating a Supplemental Dictionary

First, we'll go back to the Dictionary Maintenance Controls and Options setup.

1. Press M, for "Maintain dictionary," on the Operations Menu.
2. Study the current values on the Dictionary Maintenance Controls menu. The word file to use is still SAMPLE.ADD, since you used that last time. That's what you want, so go right past it, without doing anything to the F control.

You don't need a dictionary to update for this operation, so

1. Press D, for "Change dictionary to update."
2. Press SPACE BAR and RETURN to erase name of dictionary to update.

Caution: Any dictionary named here will be erased during this maintenance run.

Now put in the name of the new dictionary.

1. Press U, for "Change name of new or updated dictionary." You'll see B:SPELSTAR.NEW as the current value.
2. Type A:EMPLOYEE.SUP. Press RETURN. (Remember - you can use your backspace key to erase if you make a mistake while entering a new control value.)

For W, "Change work drive for sort," you can leave the current value as is.

Now you want to set up the Dictionary Maintenance Options.

1. Press N for "Create a new dictionary."
2. Press Y in response to the Y/N prompt.

The current value for A, "Add words," is already YES, from your last operation. If it had been NO, your selection of N, for "Create a new dictionary," would have changed it automatically to YES.

Make sure the current values for the T and C options are NO.

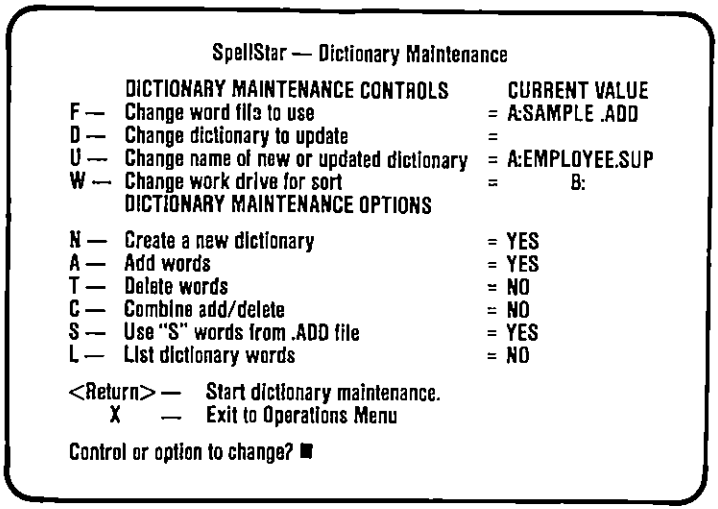
Tell SpellStar to use words you marked in SAMPLE.TXT as ones to be added to a supplemental dictionary.

1. Press S, for "Use 'S' words from .ADD file."
2. Press Y, in response to Y/N prompt at bottom of screen.

You won't list dictionary words this time, so

1. Press L, for "List dictionary words."
2. Press N in response to the Y/N prompt.

Your Controls and Options should look like this:


SpellStar — Dictionary Maintenance
DICTIONARY MAINTENANCE CONTROLS
CURRENT VALUE
F — Change word file to use = A:SAMPLE .ADD
D — Change dictionary to update =
U — Change name of new or updated dictionary = A:EMPLOYEE.SUP
W — Change work drive for sort = B:
DICTIONARY MAINTENANCE OPTIONS
N — Create a new dictionary = YES
A — Add words = YES
T — Delete words = NO
C — Combine add/delete = NO
S — Use "S" words from .ADD file = YES
L — List dictionary words = NO
<Return> — Start dictionary maintenance.
X — Exit to Operations Menu
Control or option to change? ■

Press RETURN to begin the operation.

Now SpellStar is creating a supplemental dictionary for you. Read on while it does that.

If you already had a supplemental dictionary for employee's names and you were adding to it from your .ADD file, you would have named EMPLOYEE.SUP as the dictionary to update, leaving the "new or updated dictionary" control blank. You would have selected A for "Add words" and S for "Use 'S' words from '.ADD' file" as the maintenance options.

Deleting Words from a Dictionary

You're not going to practice deleting words in this lesson; this section will simply describe how you delete words from any dictionary when you want to.

First open a file with WordStar's D command ("Open a document file") and put into it all the words you wish to delete, in any order. You can use .DEL as this file's extension if you like. SpellStar doesn't require delete files to be named any special way, but it may help you recognize that file more quickly.

When you've saved that word file with ^KD, you'll be at WordStar's "opening" menu again. Select "S"; when the NAME OF FILE prompt appears, enter the name of the word file you just created. Select M at SpellStar's Operations menu; on the Dictionary Maintenance menu, select T, "Delete words", as the maintenance option. (Naturally, you'd name the dictionary from which the words would be deleted as the "dictionary to update".)

Combined Add/Delete Maintenance

You'll practice one more dictionary maintenance operation before ending this lesson: the "Combine add/delete" step. This can be a real timesaver, letting you do two maintenance operations in one step.

In your last exercise, you created a new supplemental dictionary. Now that SpellStar has finished that, you should see the following message at the bottom of your screen:

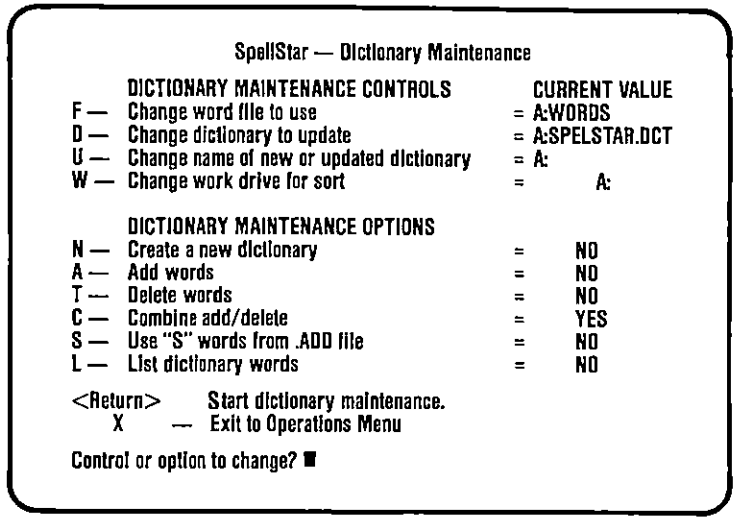
> **SpellStar has completed the dictionary maintenance.**
> **Enter Return to return to WordStar, "R" to restart.**

In other practice steps, you've pressed R to go to Spellstar's Operations menu, but you won't do that this time. Even though you're going to do another maintenance operation, you will need a file to work with, and you'll create that with WordStar.

1. Press RETURN to go to WordStar's "Opening" menu.
2. On the "Opening" menu, press D to "open a document file."
3. When the prompt NAME OF FILE TO EDIT? appears, type Words, and press RETURN.
4. When the main help menu appears, type these words in a list (don't worry about format or spacing):

   fattest
   peachy
   bunnies
   cub
   hobo
   annul

5. When you've entered all the words press CTRL KD (^K^D) to save the file.
6. When the "Opening" menu appears, press S, for "Run SpellStar."
7. When the prompt NAME OF FILE TO CHECK / ADD TO DICTIONARY? appears, type Words, and press RETURN.
8. When SpellStar's Operations Menu appears, press M, for "Maintain dictionary," then press RETURN.
9. When the Dictionary Maintenance menu appears, the current values of the controls and options should look like this:


SpellStar — Dictionary Maintenance
DICTIONARY MAINTENANCE CONTROLS
CURRENT VALUE
F — Change word file to use = A:WORDS
D — Change dictionary to update = A:SPELSTAR.DCT
U — Change name of new or updated dictionary = A:
W — Change work drive for sort = A:
DICTIONARY MAINTENANCE OPTIONS
N — Create a new dictionary = NO
A — Add words = NO
T — Delete words = NO
C — Combine add/delete = YES
S — Use "S" words from .ADD file = NO
L — List dictionary words = NO
<Return> Start dictionary maintenance.
X — Exit to Operations Menu
Control or option to change?

Note

What appears above is SpellStar's default condition for dictionary maintenance. That is, each time you come into SpellStar from WordStar, you will see these default controls: the word file you named at the "opening" menu, SPELSTAR.DCT on the logged disk drive as ". . . dictionary to update" and the logged disk drive as ". . . new or updated dictionary" and ". . . work drive." Similarly, in the options, the only YES value will be for C, "Combine add/delete." These defaults will not recur during successive SpellStar operations without exits to WordStar; in those cases, current values will show information entered for the preceding operation.

You're going to use B:SPELSTAR.NEW, the dictionary you created when you added words earlier in this lesson, so

1. Press D, for "Change dictionary to update."
2. Type B:SPELSTAR.NEW, and press RETURN.

Now change the disk drive for the updated dictionary to B:.

1. Press U for "Change name of new or updated dictionary."
2. Type B: and press RETURN.

Before you leave the controls, change the work drive value.

1. Press W for "Change work drive for sort."
2. Type B in response to the prompt.

You don't need to make any changes to the Options, since the value for C, "Combine add/delete," is already YES, and all others are NO. This is just what you want.

Now press RETURN to begin the combined add/delete maintenance run on your WORDS file.

What SpellStar is doing is comparing all words in the WORDS file to SPELSTAR.NEW. In one step, it's adding words from WORDS that aren't already in the dictionary, and deleting from the dictionary any words already listed there.

While SpellStar is doing this, you'll see on the screen the familiar six-line summary. Above that, at the top of the screen, you will see a prompt for several words, one at a time, in the WORDS file that looks like this:

```
[HOBO]
This word is in the dictionary. Should it be deleted? (Y/N)
```

1. Press N for No.
2. Press N the next two times the message appears, for "hobo" and "annul."

SpellStar shows you this to tell you that the word in the first line is already in the dictionary; it asks you to confirm that you want the duplicate deleted. In other words, SpellStar asks you to double-check all words that it thinks should be deleted.

In this practice run on the WORDS file, you should enter N in response to all the double-check prompts SpellStar shows you.

Notice that SpellStar is adding the words in the WORDS file that weren't in the dictionary. By the time this maintenance run is finished, the line "Number of words added to dictionary" should say 5.

When the maintenance run is over, SpellStar gives you the usual message.

1. Respond to the prompt "Enter Return to return to WordStar, "R" to restart" by pressing RETURN.
2. When the " Opening " menu appears, press Y for "Delete a file."
3. When the prompt NAME OF FILE TO DELETE? appears, type SAMPLE.ADD, and press RETURN.

Since you have added the words in SAMPLE.ADD to both your main and supplemental dictionaries, you have no further use for this file. It is good to delete it so that it doesn't take up disk space unnecessarily.

The only time you would want to keep a .ADD file would be if you planned to make an addition to the document file to which it corresponds. Then, when you rechecked the file for spelling errors, SpellStar would remember all the Ignore commands it has stored in the .ADD file. So, SpellStar would pass over the words you previously told it to ignore when it checked the file for the second time.

Now you'll erase SPELSTAR.NEW and EMPLOYEE.SUP, since you may want to run this lesson again.

1. Press Y, for "Delete a file."
2. When the prompt NAME OF FILE TO DELETE? appears, type B:SPELSTAR.NEW, and press RETURN.

Now do the same thing for EMPLOYEE.SUP.

1. Press Y, for "Delete a file."
2. When the prompt NAME OF FILE TO DELETE? appears, type A:EMPLOYEE.SUP, and press RETURN.

Remember, in normal maintenance, when you update a dictionary, you keep the new one and delete the old one. You've done just the opposite here—so that you can repeat this lesson if you wish.

End of the Extended Course

This concludes the Extended Course. By now you have become acquainted with every major WordStar feature. Here is a brief summary of what you have learned:

Lesson 13. You learned how to set conditional and unconditional page breaks for documents longer than one page.

Lesson 14. You learned how to add page headings and footings to a document to be printed, as well as how to print selected pages, pause for paper changes, and suspend a print job.

Lesson 15. You learned how to type the matrix and the data file for a form letter, with names and addresses inserted from the data file.

Lesson 16. You learned how to address envelopes, print mailing labels, format your data file, and how to combine several printing jobs into one.

Lesson 17. You learned how to type the matrix and several nested files for a letter of reply.

Lesson 18. You learned how to print a number of files in succession from a single command file (chain-printing) and how to print multiple copies of a document.

Lesson 19. You learned how to check a document for misspellings, correct errors, and set aside words to add to a dictionary.

Lesson 20. You learned how to run all SpellStar's dictionary maintenance operations—adding words, deleting words, combining add/delete, and creating a new dictionary.

You have created the following files:

PRACTICE (Lesson 2)
DISPLAY (Lesson 7)
X (Lesson 12)
DATASTAR (Lesson 13)
ENVELOP3 (Lesson 16)
COMBINE3 (Lesson 16)
RADIO (Lesson 17)
GUIDE1 (Lesson 18)
PRINT01 (Lesson 18)

LETTER (Lesson 3)
TABLES (Lesson 8)
Z (Lesson 12)
MAILING3 (Lesson 15)
LABEL3 (Lesson 16)
REPLY (Lesson 17)
TV (Lesson 17)
GUIDE2 (Lesson 18)
PRINT02 (Lesson 18)

CONTROL (Lesson 6)
SPECIAL (Lessons 9)
Y (Lesson 12)
LIST3.DAT (Lesson 15)
FORMAT3 (Lesson 16)
HEADING (Lesson 17)
STEREO (Lesson 17)
GUIDE3 (Lesson 18)
WORDS (Lesson 20)

If you plan to repeat any of these lessons or you have no further use for these files, you may want to delete them now.

Conclusion

Asking for Less Help

In Lesson 2 we talked about help levels, and recommended that you stay with level 3 until you finished this guide. If you feel that you are now ready to use WordStar with less help (and more screen space to work in), you can change the help level:

1. When the " Opening " menu appears, press H to request to set the help level.
2. When the prompt ENTER Space OR NEW HELP LEVEL (0, 1, 2, OR 3): appears, type 0, 1, or 2.

Turning WordStar Features Off

During the course of using this guide, you have always had all Wordstar features available to you. You may never want to turn any of them off. But if the need should ever arise, there are commands to shut off these WordStar features (also turn them back on again):

Word wrap (^O^W)
Justification (^O^J)
Variable tabbing (^O^V)
Ruler line display (^O^T)
Page break display (^O^P)
Print control display (^O^D)
Hyphen help (^O^H)
Temporary hyphen entry (^O^E)
File directory display (F or ^K^F)

Maintaining Your Disk Files

Until now, you have not created a large number of files on your disk. But after you've done quite a bit of typing, you will have a lot of files and you will have to think about maintaining them and avoiding overflow on your disk. Your operating system provides you with a number of utility programs (some also in WordStar) that can help you in maintaining your disk files:

- displaying a listing of the disk directory
- displaying the amount of space left on the disk
- making a copy of an entire disk
- copying, renaming, or deleting a file
- printing screen displays on your printer

These programs can help you keep track of your disk files, make backup copies of them, and avoid filling up your disk. Refer to the publication that describes your operating system.

Finding Out More

You have now completed the WordStar training course. We have tried to cover every topic you will need to start working right away. (If we missed anything, please let us know.) At the end of this course, you should know all the major functions of WordStar. However, there are other things you can do with WordStar that haven't been mentioned in this booklet:

- Using another deletion key (delete character left)
- Setting your own ruler line
- Inserting a permanent hyphen
- Printing one line over another
- Changing margins or tabs in mid-paragraph
- Setting extra wide margins up to 240 columns
- Sophisticated searching techniques for Find and Replace
- Additional printing features:
  —changing ribbon color
  —selecting alternate character pitch
  —setting other print functions
  —setting fine adjustments for printing
  —selecting other printing options
- Additional MailMerge features:
  —changing diskettes
  —controlling print-time reformatting

NOTES

WordStar®
Installation Manual

This manual is only for reference.

WordStar is already installed.
If you wish to reinstall WordStar,
refer to "INSTALLATION" in
the SANYO MICROPRO manual.

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- **Chapter 4, Protocols and Drivers,** discusses WordStar's requirements for communicating with your printer. This information should be particularly helpful for beginners.

- **Chapter 5, WordStar Features,** explains how you can tailor the WordStar program to your particular requirements. Once you are familiar with WordStar, you may want to change normal operations. For example, using the custom installation procedures described in this chapter, you can instruct WordStar to number pages only at your request.

- **Chapter 6, Testing Installation,** explains how to make sure you've installed WordStar properly.

- **Appendix A, ASCII Conversion Chart,** shows the conversion of ASCII codes to decimal and hexadecimal values.

- **Appendix B, Installation Quick Guide,** summarizes the WordStar installation procedure.

Everyone should begin with basic installation procedures in Chapter 1. If your system requires custom installation, you'll be instructed to proceed to the more advanced steps.

RE-RUNNING INSTALLATION LATER

You may want to run the installation program again later. If you were to acquire a new printer or terminal, for example, or if you simply wanted to change a few standard features, you would use this manual to re-install the WordStar program.

ADDITIONAL INFORMATION

Use the following resources to answer some of your questions:

- Appendix A in this manual will help you convert values into three formats: ASCII, decimal, and hexadecimal.

- The glossary at the back of the WordStar Reference Manual will help you understand unfamiliar terms.
- Appendix A, "Program Specifications," in the reference manual will answer your questions about hardware and software requirements.
- Your terminal, printer, and computer manuals and your dealer will supply the specific information about your hardware requested by the installation program.

The following symbols are used in this manual:

RETURN KEY

REMEMBER

KEEP IN MIND

CAUTION

WHAT YOU'LL NEED TO KNOW

Before you begin your WordStar installation, it's a good idea to gather the information you'll need. Ask your dealer or consult your terminal, printer, and computer manuals for the following information. Write it down for reference.

Terminal name: _____

Printer name: _____

Communications Protocol (if necessary):

_____

Printer Driver: _____

COPYING WORDSTAR

Before you run the installation program for the first time, you'll need to copy your WordStar Distribution disk. Your distribution disk contains the following WordStar program files and auxiliary files:

- WSU.COM
- WINSTALL.COM
- WS.INS
- PRINT.TST
- WSOVLY1.OVR
- WSMSGS.OVR

NOTE: IBM and other 16-bit computer systems use files with slightly different names. See the addendum to the reference manual for a list of files.

The instructions included here are general; refer to your system documentation for specific commands. If you have already copied the disk, go on to the next section, "Installation Procedures."

STEP 1 Turn on your computer.

STEP 2 Boot your system.

STEP 3 Place your WordStar Distribution disk in drive A.

STEP 4 Place a formatted disk in drive B.

STEP 5 At your system prompt, type instructions to copy the files from the distribution disk in drive A to the disk in drive B.

You now have a copy of the WordStar Distribution Disk in drive B. If you purchased other MicroPro software for use with WordStar—SpellStar or MailMerge—follow the same steps to copy them as well. Once you have placed the original program disks in a safe place, you're ready to run the installation program.

NOTE: You can create a WordStar system disk, that is, a disk that includes the WordStar program *and* your operating system. This disk will enable you to boot the system and enter WordStar directly. Refer to your system documentation for specific instructions.

INSTALLATION PROCEDURES

Place the copy of the WordStar distribution disk in the logged disk drive and make sure the operating system prompt is on the screen.

STEP 1 TYPE **WINSTALL** RETURN

SEE copyright information

STEP 2 PRESS any key

SEE **Would you like to continue?**

STEP 3 RETURN or TYPE **Y** or **N**

If you choose to leave the installation program at this point, no changes will be made to the file.

NOTE: If at some point an error message appears, follow the instructions on your screen to correct the problem.

SEE **Which MicroPro product would you like to install?**

STEP 4 TYPE **WS** RETURN

Be sure to enter the correct code for WordStar. Typing the wrong code will produce an error message.

NOTE: You can bypass steps 2-4 by typing WINSTALL and the product code on the same line. At the operating system prompt,

TYPE **WINSTALL WS** RETURN

TYPE any key

SEE an information screen

Be sure to read all onscreen information and instructions as you proceed through the installation program.

STEP 5 PRESS any key

PROGRAM EXIT You can leave the installation program at any point by pressing ^C.

SEE disk drive name request

If some of your WordStar installation files (WSU.COM, for example) are located on another disk drive, enter the disk drive name here. If all files are located on the logged disk drive, press RETURN.

SEE **Name of file to install or RETURN or WSU.COM**

At this screen, you first provide the name of the file to be installed or modified and then the name for the newly installed file. WSU.COM is the Uninstalled version of WordStar. WS.COM is the installed version you'll use to run WordStar.

STEP 6 RETURN

SEE **File to install is : WSU.COM**

NOTE: If you are re-installing WordStar you'll find slight differences between the onscreen text and descriptions in the manual. From this point on in the program, simply follow the instructions on the screen, using the manual as a reference; the steps will be the same.

SEE **Enter name of file for installed WordStar, or RETURN for WS.COM.**

STEP 7 RETURN

SEE doublecheck message

STEP 8 RETURN or TYPE **Y** if all information is accurate; otherwise TYPE **N**. If you type **N**, you'll return to the information screen.

SEE **INSTALL is copying the file *filename*. PLEASE WAIT.**

Throughout the program, you'll be asked to confirm your responses. This safeguard lets you check your work and correct errors. If you type **N (No)**, you will return to an earlier prompt where you can make necessary changes.

SEE **INSTALLATION MENU**

INSTALLATION MENU

From this main menu, you will make the necessary selections to install WordStar for your computer system. You'll return to the main menu each time you complete a selection. Each menu item is briefly described here:

- **A, Menu of Terminals.** From this menu, which lists most terminals, you will select the terminal you are using.
- **B, Custom Installation of Terminals.** If your terminal isn't listed on the Menu of Terminals, you'll choose this option to provide WordStar with the information it needs.
- **C, Menu of Printers.** From this menu, you'll select the printer you are using.
- **D, Custom Installation of Printers.** If your printer isn't listed on the Menu of Printers, you'll choose this option to provide WordStar with the information it needs.

- **E, Menu of WordStar Features.** By making selections from this menu, you can modify certain WordStar features. Wait until you have completed the training guide and have become familiar with the way WordStar works before you make changes.
- **F, Operating System Considerations.** If you have a multi-user operating system, MP/M, you'll select this option along with the others needed for installation.

- **X, Exit from INSTALL.** This option lets you review your selections, make more changes if you like, and then return to the operating system. Only when you choose **X** are changes made to the installed WordStar file.

MULTI-USER SYSTEMS

If your operating system is MP/M, take step 9; if not, bypass this step:

STEP 9 TYPE **F**

SEE **Is this to be installed on an MP/M system?**
Currently . . .NO (it is not).

TYPE **C**

SEE **NOW . . .YES (it is).**

Choose this option only if your system is multi-user. The default setting is single-user.

SELECTING A TERMINAL

Your CRT must have a display area of at least 16 lines by 64 columns. The maximum display area depends on the amount of RAM available in your computer. The upper limit is about 57 lines by 120 columns.

WordStar can use the following features to enhance the performance of your terminal:

- Erase to end of line
- Line insert
- Line delete
- Either inverse video or bright/dim highlighting

STEP 10 TYPE **A**

SEE **Is your terminal on this list?**

STEP 11 TYPE **Y** (Yes) or **N** (No)

If you typed **Y** (Yes):

SEE **Terminal is currently : no terminal yet selected**

EXTRA TERMINAL TYPES

STEP 12 TYPE the appropriate letter for your terminal

OR, if you typed **N** (No) at STEP 11:

SEE **Terminal is currently : no terminal yet selected,** followed by a list of terminal types

STEP 12 TYPE the appropriate letter for your terminal

If your terminal isn't listed, go on to the next menu. If you are viewing menu #1, for example, type **2** to see menu #2.

NOTE: If the exact name of your terminal doesn't appear on any menu, talk to your dealer. One of the terminals listed may be so similar to yours that WordStar won't know the difference. Otherwise, you will need to select **B** on the Installation Menu and do a custom installation (see Chapter 2, "Custom Terminal Installation").

STEP 13

or TYPE **Y** if correct, **N** if you need to make a change

SEE **INSTALLATION MENU**

STEP 14 TYPE **C**

SEE **Printer is currently : no printer yet selected**

SEE **STANDARD PRINTER TYPES**

SELECTING A PRINTER

WordStar works with most printers on the market and can be installed to use most printer features, though some require special procedures (see Chapter 4 of this manual).

If your printer is capable of backspacing or carriage returns without line feed, you can use the following WordStar printing features:

- underlining
- boldface (multi-strike method)
- doublestriking
- overstriking

If you have a specialty printer, that is, a printer capable of incremental motion, you can use these WordStar printing features:

- microspace justification
- variable line height
- variable character pitch
- subscripts
- superscripts
- boldface (offset and restrike method)

The Standard Printer Types menus list several printers. Almost any printer can be installed by selecting **Standard printer.** If your printer can also backspace, select **Backspacing standard printer.** However, if you have a daisy-wheel or other specialty printer and you want to use all the print features available with WordStar, you must select your exact printer name from this menu.

Check the glossary in the WordStar Reference Manual to better understand unfamiliar terms.

SPECIALTY PRINTER CAPABILITIES

Specialty printers (and those which are mechanically and functionally similar) are capable of backspacing, bidirectional printing, and spacing vertically and horizontally in increments smaller than one line or one character width. Specialty printers are sometimes called letter-quality printers.

If your printer name isn't listed, you can select **D** on the Installation Menu and perform a custom printer installation. Instructions are given in Chapter 3, "Custom Printer Installation."

Some printers have switches which must be properly set for WordStar operation. In Chapter 3, "Custom Printer Installation," you'll find information about setting these switches.

STEP 15 TYPE the appropriate letter

If your printer isn't listed, go on to the next menu. If you are viewing menu #1, for example, type **2** to see menu #2.

SEE **You have chosen :** your selection

SEE further information (with some selections)

STEP 16 RETURN or TYPE **Y**, if correct, **N** if you want to change your selection

SEE **Communications protocol is currently: No protocol**

SEE **COMMUNICATIONS PROTOCOL MENU**

SETTING THE PROTOCOL

At the Communications Protocol Menu, you'll tell WordStar how to communicate with your printer. If you are unfamiliar with protocols, turn to Chapter 4, "Protocols and Drivers." You'll find an easy-to-understand explanation and more detailed instructions about how to set the communication protocol if one is required for your printer. Also, consult your printer manual to establish what protocol, if any, you need.

STEP 17 TYPE **A, B, C,** or RETURN

SEE **Communications protocol is now :** your selection

STEP 18 RETURN or TYPE **Y** or **N**

Depending on your protocol choice, you will or will not be required to give more information. If further information *is* required, see Chapter 4.

SEE **Driver is currently : No driver yet selected**

SEE **DRIVER MENU**

SETTING THE DRIVER

At the Driver Menu, you'll tell WordStar how to handle the communication between your computer and your printer. Again, refer to Chapter 4 of this manual and to your printer and computer manuals for the necessary information.

STEP 19 TYPE **A, B, C,** or RETURN

SEE **Driver is now :** your selection

SEE further information

STEP 20 RETURN or TYPE **Y** or **N**

SEE further information

If further information is required at this point, see Chapter 4.

SEE **INSTALLATION MENU**

LEAVING THE INSTALLATION PROGRAM

The last steps give you the opportunity to recheck your work and to reenter the installation program if you want to make a change.

STEP 21 TYPE **X**

SEE **These are your current values. Exit options menu**

STEP 22 TYPE **A, B,** or **C**

Choose **A** to save your modifications and return to the operating system. Choose **B** to leave the installation program without saving the changes you've made. Choose **C** to remain in the installation program and return to the INSTALLATION MENU.

TESTING YOUR INSTALLATION

Your installation is complete. You may want to run a test to verify that WordStar is properly installed. In Chapter 6, "Testing Installation," you'll find instructions for checking all aspects of the installation.

SAVING DISK SPACE

You may want to remove the installation program files from your disk to save space. To re-install any features later, you'll need to restore the files from your distribution disk copy.

2. Custom Terminal Installation

Custom Installation of Terminals is selection **B** on the Installation Menu. If you have already checked selection **A, Menu of Terminals,** and have not found the name of your terminal listed, you'll need to do a custom installation to give WordStar information about the codes your terminal sends and receives. This information should be available in your terminal manual.

Check with your dealer before you begin a custom installation. If your terminal is similar to one listed on the Menu, you may be able to select that terminal for your installation.

WHAT YOU'LL NEED TO KNOW

Before you begin your terminal installation, it's a good idea to gather the information you'll need. Each item is listed in the "Features" section of this chapter. Using your terminal and computer manuals, locate the necessary information and write it down for reference in the space provided.

If this is the first installation of your terminal,

SEE **INSTALLATION MENU**

TYPE **B**

SEE **TERMINAL INSTALLATION MENU**

TYPE **A**

SEE **Automatic installation of all features**

If you have already installed WordStar and you are returning to the program to modify a particular feature, select only that feature from the menu.

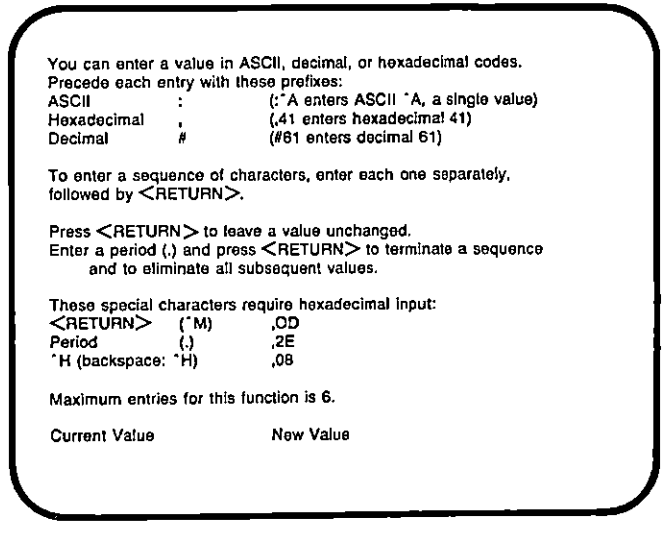
THE PROMPTS

As you respond to the prompts, you'll see each feature's current (default) values displayed. To change a value, type **C**. If the value is correct, continue to the next feature by pressing RETURN. To complete the installation of some features, you'll have to enter more than two values. If you have chosen **A, Automatic installation,** not all the current values will be displayed at once. You must type **C** to view or change each value. After each response, you'll have the opportunity to confirm your answer before you go on to the next prompt.

The first time you install your terminal you should respond to every prompt because WordStar needs this information.

CHANGING A VALUE

To change some values, you must enter information in one of three formats — decimal, hexadecimal, or ASCII. (See the ASCII Conversion Chart in Appendix A.) When you type **C**, to change a value, you'll see a screen describing these formats and explaining how to change from one to another. You'll also see instructions about how to leave a value as is and how to end the sequence. Just above the values at the bottom of the screen is a statement telling you the maximum number of entries stored by that feature. Here is the screen:


You can enter a value in ASCII, decimal, or hexadecimal codes.
Precede each entry with these prefixes:
ASCII : (:^A enters ASCII ^A, a single value)
Hexadecimal , (,41 enters hexadecimal 41)
Decimal # (#61 enters decimal 61)
To enter a sequence of characters, enter each one separately, followed by <RETURN>.
Press <RETURN> to leave a value unchanged.
Enter a period (.) and press <RETURN> to terminate a sequence and to eliminate all subsequent values.
These special characters require hexadecimal input:
<RETURN> (^M) ,0D
Period (.) ,2E
^H (backspace: ^H) ,08
Maximum entries for this function is 6.
Current Value New Value

A value typed in ASCII may include the control key. For example, if you press the control key and **A** together, **^A** will be entered as a single value. To enter a series of characters, such as **^Q^Q^C**, type **^Q** RETURN **^Q** RETURN **^C** RETURN.

FEATURES

Name: _____

TERMINAL NAME

Select **B** to give WordStar a name for your terminal. Although your response doesn't affect the program, it does affect all messages that give the name of the terminal for which WordStar is installed.

Lines: _____
Columns: _____

SCREEN SIZE

Select **C** to provide the number of horizontal lines and vertical columns available on your terminal screen. (Defaults: *24 lines, 80 columns*)

CURSOR POSITIONING

To enable WordStar to position the cursor accurately on the screen, you must supply the following (if required by your terminal):

Code: _____ • The character, or characters, that indicate the cursor is about to be moved

Code: _____ • The characters sent between the coordinates of the move

Code: _____ • The characters sent following a move

Code: _____ • The characters representing line 1 and column 1

Code: _____ • The code type representing line and column numbers: ASCII or BINARY

Code: _____ • The order in which the column number and line number are sent

Code: _____

TERMINAL START-UP

Select **E** if your terminal requires that a sequence of codes be sent in preparation for WordStar. Examples are given on the screen.

Code: _____

TERMINAL EXIT

Select **F** if your terminal also requires that a sequence of codes be sent to leave the terminal set as it was before you started WordStar.

Code: _____

HIGHLIGHTING

Select **G** if your terminal has highlighting capabilities and requires a code sequence to turn highlighting on and off. (You will need to supply the codes for both on and off.)

Code: _____

ERASE TO END OF LINE

Select **H** to provide the code for the feature that erases all characters from the cursor position to the end of the line. If this feature is not available on your terminal, WordStar will use another method to perform the same function.

Code: _____

DELETE LINE

Select **I** to provide the code sequence for the delete line feature, which erases the line containing the cursor and moves the lines below up one line. If this feature is not available on your terminal, WordStar will use another method to perform the same function.

Code: _____

INSERT LINE

Select **J** to provide the code sequence for the insert line feature. This feature places a blank line at the cursor line and pushes the text down one line on the screen. Check your terminal manual; if your terminal inserts the blank line *below* the cursor, you'll have to precede the insertion code with a code sequence to move the cursor up a line. If the insert line feature is not available on your terminal, WordStar will use another method to perform the function.

Code: _____

HANDLING OF LAST CHARACTER ON SCREEN

Select **K** and type **Y** at the prompt if your terminal scrolls up a line when it encounters a character at the bottom right of the screen. If your terminal doesn't use this convention, type **N**, and WordStar will use another method to cause the scrolling.

3. Custom Printer Installation

Custom Installation of Printers is selection **D** on the Installation Menu. If you have already checked selection **C, Menu of Printers,** and have not found your printer on the list, you'll need to perform a custom installation to take advantage of all the capabilities of your printer. WordStar needs specific information, which you'll find in your printer manual. If you need more help, ask your dealer.

You'll be installing either a standard or specialty printer. Be sure your printer has all the capabilities outlined in Chapter 1 before you install it as a specialty printer.

WHAT YOU'LL NEED TO KNOW

Before you begin your printer installation, it's a good idea to gather the information you'll need. Each item is listed in the "Features" section of this chapter. Using your printer and computer manuals, locate the necessary information and write it down for reference in the space provided.

PRINTER SWITCHES

Some printers have switches that must be properly set for WordStar to control printing operations. The switches may be located on an external control panel, on a control panel under the printer cover, or on internal circuit boards. If your printer has any of the following options switches, they should be set as recommended:

- **AUTO CR** (CR = carriage return)
  Turn this switch off.
- **AUTO LF** (LF = line feed)
  Turn this switch off.
- **FORM LENGTH**
  If you are using WordStar's **Use form feeds** print option, set this switch to match the length of the paper you are using.

- **LOCAL LF**
  Same as AUTO LF above. Turn off.

- **PARITY**
  Check your printer manual or check with your dealer for the correct setting for this switch.

- **SET TOF**
  If you're using WordStar's **Use form feeds** print option, press this switch after positioning your paper at the top of the form or at the perforation.

- **SPEED OR BAUD**
  Set this switch to match the speed at which your computer transmits characters.

In addition, some printers have a switch that must be set to activate a communication protocol when required. (See Chapter 4 for more information.) Check your printer manual to see if your printer has such a switch.

THE PROMPTS

As you respond to the prompts, you'll see each feature's current (default) values displayed. To change a value, type **C**. If the value is correct, continue to the next feature by pressing RETURN. To complete the installation of some features, you'll have to enter more than two values. If you have chosen **A** or **B, Automatic installation**, these features will not display all the current values at once. You must type **C** to view or change each value. After each response, you'll have the opportunity to confirm your answer before you go on to the next prompt.

The first time you install your printer you should respond to every prompt. WordStar needs all the information requested.

CHANGING A VALUE

To change some values, you must enter information in one of three formats — decimal, hexadecimal, or ASCII. (See the ASCII Conversion Chart in Appendix A.) When you type **C** to change a value, you'll see a screen describing how to enter a value. You'll also see instructions about how to leave a value as is and how to end the sequence. At the bottom of the screen is a statement telling you the maximum number of entries that can be stored at that feature. Here is the screen:

```
You can enter a value in ASCII, decimal, or hexadecimal codes.
Precede each entry with these prefixes:
ASCII              :      (:^A enters ASCII ^A, a single value)
Hexadecimal        ,      (,41 enters hexadecimal 41)
Decimal            #      (#61 enters decimal 61)

To enter a sequence of characters, enter each one separately,
followed by <RETURN>.

Press <RETURN> to leave a value unchanged.
Enter a period (.) and press <RETURN> to terminate a sequence
     and to eliminate all subsequent values.

These special characters require hexadecimal input:
<RETURN> (^M)          ,OD
Period (.)             ,2E
^H (backspace: ^H)     ,08

Maximum entries for this function is 6.

  Current Value New Value
```

A value typed in ASCII may include the control key. For example, if you press the control key and **A** together, **^A** will be entered as a single value. To enter a series of characters, such as **^Q^Q^C**, type **^Q** RETURN **^Q** RETURN **^C** RETURN.

INSTALLATION

Begin at the Installation Menu:

TYPE **D**
SEE **PRINTER INSTALLATION MENU**

If you are installing your printer for the first time, choose **A**, Automatic installation for specialty printer (features C through M), or **B**, Automatic installation for standard printer (features C through H and N). Later, if you want to modify a particular feature, select the appropriate letter from the Printer Installation menu and respond to the prompts.

FEATURES

All Printers

WordStar must have information about all of the following features for all printers:

Name: _____

PRINTER NAME
Select **C** to give WordStar a name for your printer. This name, which doesn't affect the program, is used in all messages that specify the printer for which WordStar is installed.

Code: _____
Code: _____

INITIALIZATION
Select **D** to provide the code sequences that tell your printer to begin and end printing.

Code: _____

OVERPRINTING

Select **E** to tell WordStar how your printer backspaces. If you are installing a backspacing printer, you'll also have to know the code that tells the printer to backspace.

Code: _____

BOLDFACING

Select **F** to specify how dark your boldfaced print will be. The default value is 2, the recommended value for specialty printers.

Protocol: _____

PROTOCOL MENU

Select **G** to set any required protocol. Refer to Chapter 4 in this manual for detailed information about communications protocols.

Driver: _____

DRIVER MENU

Select **H** to specify a printer driver. Refer to Chapter 4 in this manual for detailed information about printer drivers.

Specialty Printers Only

Install all of the following features on specialty printers to take advantage of WordStar's print features:

Code: _____

RIBBON SELECTION

Select **I** to supply alternate and standard ribbon-selection code sequences if your printer is capable of two-color printing.

VERTICAL MOTION

Select **J** if your printer is capable of the vertical movement necessary to produce sub- and superscript. You must supply the following values regarding the vertical motion index (VMI):

Code: _____

- Code sequences that tell the printer to prepare to move the platen up and down.

Code: _____

- Code sequences (called VMI trailer strings) that tell the printer the movement in vertical increments is complete. Very few printers require this information.

- The minimum value for VMI.

Value: _____

Range: _____

- The range of valid VMI values. If you don't know the range, subtract the minimum value from the maximum value.

- The code sequence for line feed.

Code: _____

- The code sequence for reverse line feed.

Code: _____

HORIZONTAL MOVEMENT

Select **K** if your printer is capable of incremental horizontal movement. You must supply the following values regarding horizontal motion index (HMI):

Code: _____

- Code sequences that tell the printer to prepare to move the print head left or right.

Increment: _____

- The fraction (increment) in inches your printer moves the print head for HMI, either 1/60 or 1/120 inch.

- The minimum value for HMI.

Value: _____

Range: _____

- The range of valid HMI values. If you don't know the range, subtract the minimum value from the maximum value.

Code: _____

- The code sequence for a space forward.

Code: _____

- The code sequence for a backspace.

PRINT MODES

Select L to enter the codes for both forward and backward printing.

Forward
Code: _____
Backward
Code: _____

PHANTOM CHARACTERS

Select **M** if your print head contains two characters, nicknamed phantom space and phantom rubout,that are not represented on your keyboard. You can set two WordStar commands to represent these characters in your printed text. Check your print head for the characters and your printer manual for the code sequence representing each.

Code: _____
Code: _____

Standard Printers Only

RETURN/LINE FEED

Select N to tell WordStar whether your printer is capable of carriage returns with line feeds, with half-line feeds, or without line feeds. If your printer is capable of one or more of these returns, most WordStar features such as overstriking, overprinting, and underscoring will function. You'll need to supply the function code sequences for each of your printer's carriage returns.

LF Code: _____
1/2 LF Code: _____
No LF Code: _____

Optional

These features are optional on all printers and depend on the special capabilities of your printer:

USER-DEFINED FUNCTIONS

Select **O** to set four WordStar commands to perform actions of your choice. If your printer supplies another font, for example, you can set one of the commands to toggle the font on and off. The four commands you set are ^PQ, ^PW, ^PE, and ^PR. You'll need to provide the code sequence for each command you define.

^PQ Code: _____

^PW Code: _____

^PE Code: _____

^PR Code: _____

Selections **I**, **Q**, and **P** are not strictly limited to ribbon selections and character pitch. Like the user-defined functions (selection **O**), these selections let you set the WordStar ^**P** commands to the code sequences of your choice. You could, for example, select **I** to enter a code for double-width characters and select **Q** to enter a code for reduced-sized characters. You could also use these selections to assign the special print features of a dot matrix printer to WordStar commands.

CARRIAGE ROLL

Select **P** if your printer is capable of rolling the platen up and down a partial line. You'll need to enter the function code sequences for both up and down partial rolls.

Roll up

Code: _____

Roll down

Code: _____

Standard
Code: _____
Alternate
Code: _____

CHARACTER PITCH

Select **Q** if your printer is capable of altering the pitch (width between characters) of your printed text. You'll need to enter the function code sequences for standard character width and alternate character width.

EXIT

Type **X** to return to the Installation Menu.

4. Protocols And Drivers

This chapter presents general information about protocols and drivers and then explains the options on both menus.

COMMUNICATIONS PROTOCOLS

A communications protocol is a system of codes that enables your printer and computer to talk to one another. If WordStar were to send 200 words per second from computer to printer, your printer, like a person taking dictation, would need a way of saying "Hold it! I can't transfer characters to paper that fast."

PRINTER BUFFER

Most printers have a good memory called the printer buffer. When receiving new information, your printer can use this buffer as storage space while printing information received earlier.

The size of this buffer is important. A buffer that holds only 500 words can become filled in seconds if WordStar is dictating 200 words per second. Any characters sent after the buffer is full will be lost.

Communications protocols require that the computer and printer *exchange* information or signals. The computer must be able to send information to the printer for printing, and the printer must be able to send signals back when it's ready to receive more information.

DO YOU NEED A PROTOCOL?

You probably won't need a communications protocol if you have a specialty printer (or one with similar capabilities) that can receive information from the computer at 300 bits per second or less (that is, with a serial interface set at 300 baud or less) or a standard printer with a serial interface at 600 baud or less. However, your printer may operate so slowly that you will want to increase the baud rate. At a higher baud rate, you will need a communications protocol unless your printer is equipped with special hardware or cabling options. (See the next section on hardware protocol.) Without a communications protocol, you run the risk of losing characters before they can be printed.

HARDWARE PROTOCOL

Use a hardware protocol if one is available. A hardware protocol is a special cabling device that regulates the exchange of information between your computer and your printer. Many computer and printer manufacturers routinely supply hardware protocols with their products. Your dealer will help you select the proper protocol for your system.

To achieve a hardware protocol with certain machines (computers or printers), some rewiring may be necessary. Such hardware protocol is *still* preferred over any software protocol (see the following section). Your hardware manuals should supply the information you need. If you cannot find this information, contact your hardware dealer or manufacturer.

SOFTWARE PROTOCOL

If a hardware protocol is unavailable, a software protocol—sometimes called "handshaking"—can be installed. Most printers are capable of using either the ETX/ACK protocol or the X-ON/X-OFF protocol. Many printers allow you to choose between the two.

Although the X-ON/X/OFF variety is generally preferred, consult your dealer or hardware manual to determine which software protocol is best to use with your printer. The WordStar program itself will handle either kind of software protocol.

Communications Protocol Menu

The Communications Protocol Menu appears after you choose **C** at the Installation Menu and then select the letter corresponding to the name of your printer (**A** - **L**) from the list of Standard Printer Types. If you are performing a custom printer installation, however, the Protocol Menu appears after you choose **D** at the Installation Menu and then **G** at the Printer Installation Menu.

NONE REQUIRED

Select **A** if your printer does not need a protocol or if the protocol is handled by the hardware. (See the previous section on hardware protocol.)

ETX/ACK PROTOCOL

Select **B** if your printer uses ETX/ACK protocol. WordStar will place a special character at the end of each information "message" it sends to the printer. This special character is known as an ETX (an acronym for **E**nd of Te**X**t) code and is represented by a value of 03. Once the printer has printed everything in the message up to the ETX code (a line, for example), it sends an ACK code (**ACK**nowledge) back to the computer. The ACK code (represented by a value of 06) tells the computer that the printer is ready to receive the next information message.

Do not attempt to install or use code in the operating system to implement ETX/ACK protocol. If WordStar is to operate under this protocol, the protocol must be executed by WordStar.

Some specialty printers (or printers with similar capabilities) permit the use of this protocol as an alternative to X-ON/X-OFF. You should use ETX/ACK protocol when other considerations require its use—for example, when other software on your computer requires it.

When you use this protocol, WordStar must know how many characters can be "dictated" before the printer buffer becomes full. In addition, some printers may require specific procedures (such as setting a switch inside the printer) to activate ETX/ACK protocol. Check your printer manual.

After you type **B** and confirm your choice, the ETX/ACK message length prompt will appear on your screen. The number you enter must be equal to or less than half the size of the printer buffer. WordStar will keep two messages in the buffer at any given time. The default is 127 characters; this number indicates that the printer buffer can hold at least 254 characters. The maximum ETX/ACK message length is 254 characters.

Be sure to decrease this value if your printer has a smaller buffer. Otherwise, the messages will overlap in the buffer, and you will lose characters or print unwanted data.

Some printers have switches that make it possible to select two or more different buffer sizes. If your printer has such switches, check to make sure the switches are set to the correct buffer sizes.

X-ON/X-OFF PROTOCOL

Select **C** for the X-ON/X-OFF protocol. When the printer is ready to receive an information message, it sends an X-ON code (transmit ON) to the computer. The X-ON code is represented by the ASCII code DC1 (which translates to a hexadecimal value 11). When it receives an information message, the printer sends an X-OFF (transmit OFF, ASCII code DC3, hexadecimal value 13) to the computer, telling it not to send any more messages before receiving the next X-ON code. This protocol is sometimes known as DC1/DC3.

X-ON/X-OFF protocol is the usual selection if you have a serial specialty printer interfaced at any rate over 300 baud. Most, but not all printers support this kink of protocol.

The ETX/ACK and X-ON/X-OFF protocols require that the computer and printer be able to *exchange* (i.e., transmit and receive) information. You must, therefore, select a printer driver which allows information to be *received from* as well as *transmitted to* the printer.

PRINTER DRIVERS

The printer driver is a program that works with the protocol to make sure that the printer and computer communicate properly. The driver tells them where to do the talking and where to do the listening. Without this information, your computer and printer couldn't "converse." They would be like people trying to carry on a phone conversation with one party speaking into the earpiece and the other listening at the mouthpiece—information could not pass between them.

Protocols require that the computer and the printer be able to exchange (that is, transmit and receive) information. Some printer drivers make this exchange possible, whereas others permit information to be sent only from the computer to the printer. Be sure to select a driver that is compatible with the type of protocol you have installed.

Your WordStar program contains several different printer drivers. The following section, which presents descriptions of each option on the driver menu, will help you make the appropriate selection for your situation.

Driver Menu

The Driver Menu appears after you have selected your communications protocol during a standard installation. If you are performing a custom printer installation, however, the Driver Menu appears after you choose **H** at the Printer Installation Menu.

OPERATING SYSTEM PRIMARY LIST DEVICE
Select **A** to send characters to your printer through the printer driver in your operating system. If your selection of a protocol was **A** (No protocol required), the Operating System List Device is the usual selection.

If you select **A**, make sure that you have set up your operating system correctly, that is, that you have assigned the correct physical device (a printer) to this logical device (the list device). See your operating system manual for the appropriate commands.

OPERATING SYSTEM SECONDARY LIST DEVICE

Select **B** if the primary list device in your operating system is assigned to a task other than printing your WordStar files. In some operating systems, a secondary list device is available.

The list device is usually not capable of exchanging information with the printer. That is, the list device will send information to the printer but will not listen for signals coming back. If you are using a software protocol (either ETX/ACK or X-ON/X-OFF), some adjustment will have to be made to your operating system. Ask your dealer for help with your particular system.

WORDSTAR'S PORT DRIVER

Select **C** to use WordStar's built-in Port Driver. This driver bypasses the operating system and exchanges information with the printer directly. If you use this driver, you will not have to adjust your operating system for two-way communication between computer and printer.

WordStar's port driver is recommended for use with a software protocol because the driver contains a test to check when the printer is busy. But to use this driver, you will need information about your computer's printer ports and the status bits at those ports.

Ports are logical places where your operating system can "plug in" to other devices. A port is not the actual plug or connector itself but has a very definite location and assigned number. Information (bits or bytes) is sent through a port on its way to another device (in this case, your printer). At the **status port** WordStar monitors the condition of the printer, that is, checks to see whether it's ready for more information.

Status bits are special bits at the status port of your computer that change when the condition of the printer has changed.

If your printer interface involves more than one output data port, one output status port, one input data port, and one input status port, WordStar's Port Driver will not work.

After you have selected and confirmed option **C**, you will be asked a series of questions—first about the numbers of the output port and output status port, and then (unless you have chosen **no protocol**) about the numbers of the input ports and input status ports. You should be able to find in your computer manual the information necessary to answer these questions.

When you enter port numbers, use hexadecimal values. See Appendix A of this manual for a decimal/hexadecimal conversion table.

After you have entered port numbers, you will be asked which bits change at the status port. You should find this information in the section of your computer manual that provides port number information. The combination of all the bits that change must be represented as a single hexadecimal value. (If you are unfamiliar with converting binary values to hexadecimal values, ask your dealer for assistance.)

First, type the hexadecimal value that corresponds to the bits that change when the port can accept a character. For example, if the one and five bits change, enter the hexadecimal value 22 (which corresponds to the decimal value 34 or the binary value 00100010).

After you have entered this hexadecimal value, you'll be asked for the hexadecimal value of the bits that change from off to on (from 0 to 1) when the printer is ready to accept more characters for printing. For example, if only the one bit changes, enter 2. If only the number 5 bit changes, enter 20. If both bits change, enter 22, just as you did before.

If you have chosen **no protocol**, the questions stop here. But if you are using a communications protocol, you'll be asked another series of questions similar to those just described—this time, about *input* ports and *input* status ports.

The input status port and status bits are used by WordStar to determine whether or not a character has been received by the printer. The number of the input data port is frequently, though not always, the same as that of the output data port. You will specify the input data port, input status port, and status bits in the same manner as you specified the output ports and bits.

5. Wordstar Features

Once you're familiar with WordStar, you may want to change the way some features operate. With the installation program, you can customize the initial setting of 19 WordStar features. Your new settings become WordStar defaults. These defaults, in turn, can be altered during an editing session with a WordStar command. For example, the preset help level is 3. If you use Option A to change the level to 0, menus will not appear when you begin writing or editing, and you'll have a larger work area. Later, if you need to see a menu, you can temporarily reset the help level.

You may want to keep more than one version of WordStar (each with a different filename) on your disks. For example, a file called WS1.COM could begin WordStar in document mode and another called WS2.COM could begin the program in non-document mode. Different versions would be tailored to different tasks.

Be sure to complete the WordStar Training Guide before you change any feature settings. The guide was designed for use with standard settings, and you could easily become confused if you tried to complete exercises using a customized version of WordStar.

From the Installation Menu,

TYPE **E**

SEE **MENU OF WORDSTAR FEATURES**

To modify a feature, type the appropriate letter and respond to the prompts on the screen. After each response, you'll have the opportunity to confirm your answer. You'll find information about each feature both on the screen and in the following discussion of menu choices. For additional information about all the features, see the WordStar Reference Manual.

FEATURES

INITIAL HELP LEVEL

Select **A** to set the level of onscreen help. To decide on the appropriate level of help, start WordStar and examine the screen under each level. As you become more familiar with the program, you'll find you need less and less help. You can later reset the level as needed. (Default: *3*)

DECIMAL POINT CHARACTER

Select **B** to set the decimal point character. This character is used for aligning columns of numbers according to the position of the decimal tab settings. (Default: *period* [.])

NON-DOCUMENT MODE

Select **C** to set the mode for editing a file you name on the command line as you start WordStar (e.g., WS *filename*). You may find it useful to set this feature to non-document mode when you are editing primarily data files. (Default: *document mode*)

INITIAL DIRECTORY DISPLAY

Select **D** to display or suppress the file directory at the Opening Menu. (Default: *on*)

INITIAL INSERTION TOGGLE

Select **E** to specify the initial setting for the insertion toggle switch. With insertion off, characters will type over previously typed text, rather than move text right. (Default: *on*)

JUSTIFICATION TOGGLE

Select **F** to specify the initial setting for the justification toggle switch. With justification off, your text will have an uneven right margin. (Default: *on*)

HYPHEN HELP TOGGLE

Select **G** to specify the initial setting for the hyphen help toggle switch. With hyphen help off, WordStar will not hyphenate words during paragraph reforming but will simply move words extending beyond the margin to the next line. (Default: *on*)

OMIT-PAGE-NUMBERING

Select **H** to specify the initial setting of the omit-page-numbering toggle switch. If the toggle switch is off, the pages will be numbered during printing. (Default: *off*)

TOP MARGIN

Select **I** to specify the number of lines to be left blank at the top of the printed page. (Default: *3*)

BOTTOM MARGIN

Select **J** to specify the number of lines to be left blank at the bottom of the page. (Default: *8*)

LEFT MARGIN

Select **K** to adjust the left margin on the screen and on the printed page. The left margin must not exceed the right margin and should be set at a number less than 240. (Default: *1*)

With the left margin set at 1, your text appears at the extreme left on your screen. When printed, however, your text will appear to the right of the space allocated for page offset (see selection **N**).

RIGHT MARGIN

Select **L** to adjust the right margin on the screen and on the printed page. The right margin has no theoretical limit but does have practical limits — page width and printer capacity. (Default: *65*)

NUMBER OF LINES PER PAGE

Select **M** to adjust the number of lines available on a page for printing WordStar documents. (Default: *66 lines, the setting for 11 inch paper*)

PAGE OFFSET

Select **N** to adjust the number of columns left blank at the left side of the printed page. The left margin will begin to the right of this setting. For example, a page offset of 8 and a left margin of 10 will cause printing to begin in column 18 on your paper. (Default: *8*)

FORM FEEDS TOGGLE

Select **O** to set the form feed toggle switch. The value you set becomes the default answer to the question, "Use form feeds?" This question appears prior to printing files with WordStar or MailMerge. When this toggle switch is on, form feeds are used; when off, line feeds are used. (Default: *form feeds off*)

DATA FIELD SEPARATOR

Select **P** to specify the character to be used to separate fields in a datafile. You can choose any character. This feature applies only to the MailMerge option of WordStar. (Default: *comma* [,])

VARIABLE NAME SYMBOL

Select **Q** to specify the characters to be used before and after variable names inserted into a file being merged. You can choose any character. This feature applies only to the MailMerge option of WordStar. (Default: *ampersand* [&])

SYSTEM DISK DRIVE

Select **R** to specify the disk drive where your .OVR files are stored. WordStar looks first for the files on your currently logged drive, which is the drive indicated by your operating system when you start a program. If your files are not found there, WordStar looks for them on the system drive.

EXIT

Type **X** to return to the Installation Menu.

6. Testing Installation

This chapter contains a few, simple tests that will help you determine if your terminal and printer are correctly installed to work with WordStar.

CHECK WORDSTAR'S OPENING SCREEN

To test your installation, start WordStar running on your computer. At the system prompt,

TYPE **WS** RETURN

SEE Program version and serial number, copyright information, and the terminal, printer, communications protocol, and printer driver selections you made during installation

The display will remain on your screen for a few seconds (or until you press any key). Then you will see the WordStar Opening Menu.

CHECK CURSOR POSITIONING

The cursor should be positioned at the lower right of the Opening Menu. If lines run together on your screen and punctuation appears at random, the cursor positioning function codes are incorrect for your terminal. Check your terminal manual and the settings of all option switches on the terminal. Reinstall WordStar or correct your terminal settings.

TEST THE ERASE FUNCTION

With the Opening Menu on the screen, open a document file:

TYPE **D**

SEE **Name of file to edit?**

If information from the Opening Menu remains on your screen, the erase to end-of-line function is not working correctly. Re-install your WordStar program with the correct function codes.

PRESS ESCape

CHECK HIGHLIGHTING

To check the highlighting feature, look at the Opening Menu. If highlighting is installed, the list of commands and the title **<<<OPENING MENU>>>** will appear brighter (or dimmer) than other characters on the screen or in inverse video. The type of highlighting depends on your installation.

First, check the contrast or brightness control on your terminal to be sure the screen is properly illuminated. If highlighting is not installed correctly, you'll see no contrast in brightness on the Opening Menu. Re-install the function codes correctly.

PRINT TEST

From the Opening Menu, you should be able to print a file. Make sure your printer is on and ready to print.

TYPE **P**

SEE **Name of file to print?**

TYPE **PRINT.TST**

PRESS ESCape

The PRINT.TST file should print, exhibiting many of the print features available in WordStar. If printing doesn't begin or if the features you've installed don't operate correctly, you'll need to re-install your printer.

END THE TESTS

After the file finishes printing, the Opening Menu will return to the screen. Return to your operating system:

TYPE **X**

SEE your operating system prompt

You can now be assured that WordStar is ready to go to work. If you are new to word processing, you should go on to the WordStar Training Guide now. Otherwise, use the WordStar Reference Manual to learn the fine points of the WordStar program. Enjoy!

Appendix A
ASCII Conversion Chart

ASCII	DECIMAL	HEXA DECIMAL	ASCII	DECIMAL	HEXA DECIMAL
!	33	21H	G	71	47H
"	34	22H	H	72	48H
#	35	23H	I	73	49H
$	36	24H	J	74	4AH
%	37	25H	K	75	4BH
&	38	26H	L	76	4CH
'	39	27H	M	77	4DH
(	40	28H	N	78	4EH
)	41	29H	O	79	4FH
*	42	2AH	P	80	50H
+	43	2BH	Q	81	51H
,	44	2CH	R	82	52H
-	45	2DH	S	83	53H
.	46	2EH	T	84	54H
/	47	2FH	U	85	55H
			V	86	56H
			W	87	57H
0	48	30H	X	88	58H
1	49	31H	Y	89	59H
2	50	32H	Z	90	5AH
3	51	33H	[	91	5BH
4	52	34H	/	92	5CH
5	53	35H	]	92	5CH
6	54	36H	^	94	5EH
7	55	37H	_	95	5FH
8	56	38H			
9	57	39H	`	96	60H
:	58	3AH	a	97	61H
;	59	3BH	b	98	62H
	60	3CH	c	99	63H
=	61	3DH	d	100	64H
	62	3EH	e	101	65H
?	63	3FH	f	102	66H
			g	103	67H
	64	40H	h	104	68H
A	65	41H	i	105	69H
B	66	42H	j	106	6AH
C	67	43H	k	107	6BH
D	68	44H	l	108	6CH
E	69	45H	m	109	6DH
F	70	46H	n	110	6EH

- continued -

ASCII	DECIMAL	HEXA DECIMAL	ASCII	DECIMAL	HEXA DECIMAL
o	111	6FH	w	119	77H
p	112	70H	x	120	78H
q	113	71H	y	121	79H
r	114	72H	z	122	7AH
s	115	73H		123	7BH
t	116	74H		124	7CH
u	117	75H		125	7DH
v	118	76H		126	7EH
			DEL	127	7FH

Appendix B
Quick Guide

The steps below summarize the WordStar installation procedure. If you are installing WordStar for the first time, use the manual to help you with each step.

STEP 1 **COPY YOUR DISK**

Copy your distribution disk and store the original in a safe place.

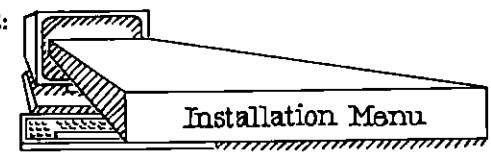
STEP 2 **BEGIN INSTALLATION PROGRAM**

To enter the installation program:

TYPE WINSTALL RETURN **and respond to the prompts.**

INSTALLATION FOR MULTI-USER

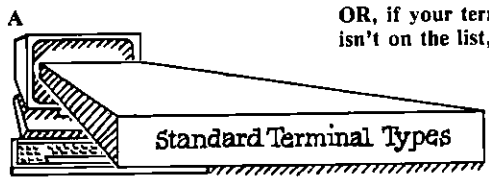
SEE:



If you are installing under an MP/M operating system: **TYPE F and respond to the prompts.**

STEP 3 **INSTALL YOUR TERMINAL**

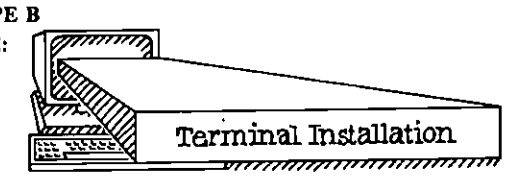
TYPE A
SEE:



TYPE the letter representing your terminal

OR, if your terminal isn't on the list,

TYPE B
SEE:

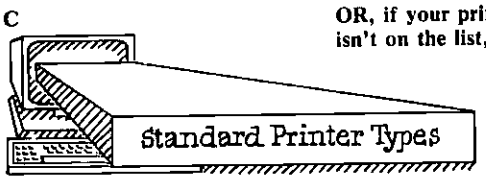


TYPE A or B and respond to the prompts.

STEP 4 **INSTALL YOUR PRINTER**

SEE: INSTALLATION MENU

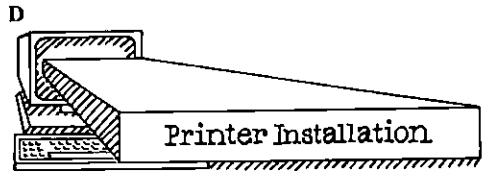
TYPE C
SEE:



TYPE the letter representing your printer

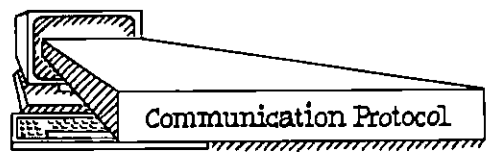
OR, if your printer isn't on the list,

TYPE D
SEE:



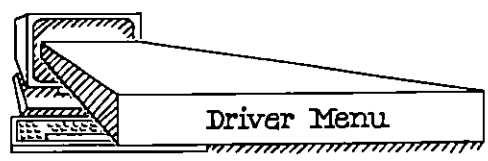
TYPE A or B and respond to the prompts

SEE:



TYPE A, B, C, or RETURN

SEE:



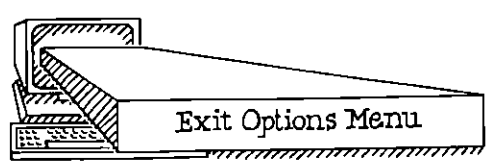
TYPE A, B, C, OR RETURN

STEP 5 **COMPLETE THE INSTALLATION**

SEE INSTALLATION MENU

TYPE X

SEE:



TYPE A, B, or C

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CalcStar User's Manual

CS-3510-1 (1.2)
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The Microcomputer Software Company

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INTRODUCTION

WHAT IS CalcStar?

CalcStar is MicroPro's powerful electronic spreadsheet — a sophisticated, yet easy to use calculating and business planning tool designed to work in concert with our family of other high quality products. CalcStar's capabilities include:

- Handling of input data and the formatting of your worksheet.
- An extensive set of commands, functions, and help menus.
- Handling of output data and the formatting of printed output.

With CalcStar, you are free to concentrate on your applications. CalcStar performs the tedious data formatting and mathematical operations.

CalcStar is easy to use. You will find that CalcStar will really save you time.

WHAT CAN I DO WITH CalcStar?

Once you have defined your problem, CalcStar will take most of the work out of it for you. In particular, some of the things you can do with CalcStar are:

- Enter numeric data and/or alphabetic information into the cells of your worksheet. You can identify rows and columns of data in any way that makes sense to you.

- Perform arithmetic and logical operations on numeric data contained in the cells of your worksheet. For example, you can sum rows or columns and put the results into specified cells.

- Output the formatted results of your calculations to your printer. You can format your balance sheet or inventory control form just the way you want.

- Output the contents of each cell to either your printer or to your disk.

- Output your application program to disk or to the printer.

But you say, tell me some of the applications of CalcStar. Well, there are many applications. Some typical applications are:

- Balancing Checkbooks

- Estimating Job Costs

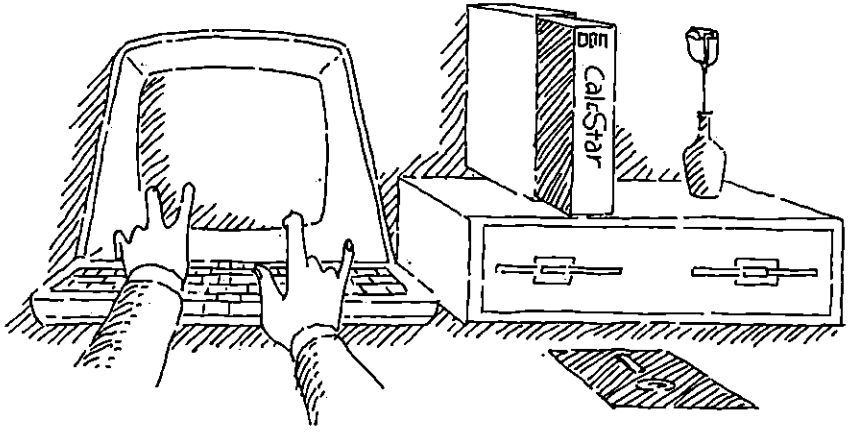
- Depreciating Assets

- Forecasting Business Trends

- Preparing Income Statements

- Controlling Inventory

These are just a few of the types of applications that can be done with the help of CalcStar.



1 CalcStar

1.0 OVERVIEW OF THIS MANUAL

This manual contains a wealth of information for the CalcStar user. The material is organized so that it will be helpful to the experienced programmer as well as one who is less experienced.

Herein the user will find applications and reference material. In addition, there are two indexes, one for commands and one for general information use.

1.1 THE PURPOSE OF THIS MANUAL

This manual has two major purposes:

- Training
- Reference

First you will encounter the training portion of the manual.

The reference portion of the manual is found mostly in the later sections.

1.2 HOW TO USE THIS MANUAL

Whether you are an experienced programmer or a first time user of this type of software product, you should study Chapter 2 to learn how to install CalcStar on your system. Then, you should familiarize yourself with the CalcStar screen and learn something about CalcStar commands by studying Chapter 3.

If you are familiar with spreadsheet-type programs you can refer to Chapter 14, which contains definitions of the CalcStar commands and functions.

However, if you are not thoroughly familiar with this type of program, you should begin with the applications in Chapter 4 and proceed to work through them all.

1.3 CHAPTER DESCRIPTIONS

INTRODUCTION explains what CalcStar is and gives some typical applications.

CHAPTER 1: This chapter provides an overview of the manual. It is pointed out that the purpose of the manual is both training and reference.

CHAPTER 2: This chapter defines terms with which you should be familiar. In addition, this chapter explains how to make copies of the CalcStar disk and how to install CalcStar on your system.

CHAPTER 3: This chapter introduces the user to the CalcStar worksheet and provides some practice with moving the cursor around. This is a very important chapter as it gives you practice with CalcStar without having to really understand how all of the CalcStar commands and functions work.

CHAPTER 4: This chapter provides both practice in using the CalcStar screen and shows another facet of CalcStar. It is possible to Use CalcStar As A Calculator. There are powerful mathematical functions which are available in addition to adding, subtracting, etc. In particular, logarithms and exponential operations can be extremely useful in certain applications.

CHAPTERS 5, 6, and 7: These chapters deal with the first application example. It is through these chapters that you get your first real opportunity to learn the power of CalcStar. One of the purposes of this application is to present a selection of the commands and functions. This application example is called **Using CalcStar to Balance Your Checkbook —PARTS I, II, and III.**

CHAPTERS 8, 9, and 10: These chapters show you how you can **Estimate A Job Cost.** More of the CalcStar commands and functions are introduced. This is a usable example for many types of job costs. The application provides for various overhead rates and material burden.

CHAPTER 11: **Asset Depreciation** is looked at in this chapter. The formulas needed to depreciate an asset over a number of years have already been programmed onto the disk that comes with the CalcStar program. This application is applicable to any business or individual need that deals with asset depreciation.

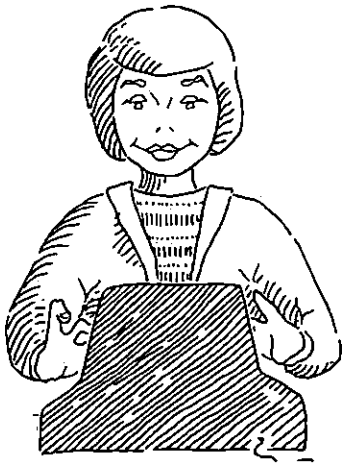
CHAPTER 12: CalcStar has the ability to perform **Linear Regression Functions.** By using these functions, business trends can be linearized, making it possible to forecast future business based on past performance. This chapter shows how revenue from product sales is dependent upon dollars spent on advertising.

CHAPTER 13: This is the final application presented in this manual. **Preparing An Income Statement** is dealt with in this chapter. This example also uses the Linear Regression Functions.

CHAPTER 14: COMMANDS/FUNCTIONS is the title of this chapter. No matter what your level of programming expertise, this chapter will be helpful. Every command and function recognized by the CalcStar program is listed, explained, and an example given.

APPENDIX A: **Error Messages** that may appear on your screen during the execution of the CalcStar program are listed alphabetically in this appendix. An explanation of the message and possible solutions to eradicate the error are given.

APPENDIX B: A special program known as CSDUMP is also included with the CalcStar package. This program allows you to print, either to a printer or another file, the instructions for a CalcStar worksheet. These instructions include formulas, cell format, and entry type. Also included in this appendix are the CSDUMP versions of Chapters 5 through 13.



2 PRELIMINARY INFORMATION

2.0 INTRODUCTION

Before you actually get into CalcStar, there are a few things you should know about computer hardware, booting your system, making copies of your disks, and installing CalcStar.

2.1 COMPUTER HARDWARE AND TERMS

In this chapter, computer hardware and some common computer terms are explained. There is no need to remember all of these terms. Just refer back to this list when you have questions.

COMPUTER HARDWARE is the physical nuts and bolts of your system, including the computer, the floppy disks or hard disks, the disk drives, the CRT screen, the CRT keyboard, and the printer.

COMPUTER manipulates data and contains memory (RAM — Random Access Memory). All data that you type is held in temporary memory (RAM) until you cause it to be stored either on a hard disk or a floppy disk. This permanent saving of data is initiated by the Save Command (;S) in the CalcStar program. If you turn the computer off without saving your data on a disk, the data will be lost.

HARD DISKS are for storage of large amounts of information. A sealed housing protects the hard disk from dust and other sources of potential harm to the magnetic surface.

FLOPPY DISKS are flexible plastic disks, 5¼" or 8" in diameter, used to store programs and data. CalcStar is distributed on a floppy disk.

DISK DRIVES spin the disks, either hard or floppy, while information is recorded on or retrieved from the disks.

LOGGED DISK DRIVE is the disk drive you are currently working on. The logged disk drive is usually drive A when an operating system is started. If your system has two or more disk drives, you can log onto any one of them.

CRT TERMINAL includes your screen and keyboard. The terminal is your access to the computer. All commands are typed and then entered into the computer from the keyboard.

PRINTER provides a printout of any information that is on the screen or has been stored in a file.

SOFTWARE is a program that controls the interaction between you and the computer.

OPERATING SYSTEM is the collection of programs that run the computer (e.g., CP/M, MS-DOS, etc.). These programs are a special kind of software that help you manage your files, format blank disks, etc.

SYSTEM PROMPT is the symbol that appears on your screen when your system is started (e.g., A>).

FILE is all of the information stored under a specific file name. CalcStar can save information on disks in three different file formats: CalcStar format, .CSD file; data file format, .DTA file; and text file format, .TXT file.

2.2 STARTING YOUR COMPUTER

Follow this checklist to get your computer going. All computers differ, so consult your hardware manual for specific details.

- Make sure there are no floppy disks in your disk drives. Powering your system up or down with a disk in a drive can result in the loss of information recorded on the disk. Turn on your computer and terminal.

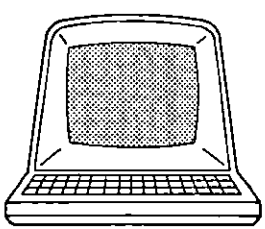
- Switch on your printer, load it with paper, check the paper alignment and the ribbon.

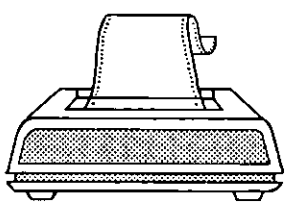
- Place a disk containing your operating system in the A disk drive.

- Boot your system. See your hardware manual to determine how to boot your particular computer system.

Your system prompt will appear on the screen.

Remember: Your computer is a logical friend that will do what you tell it to do. If you make a typing or command mistake, this user's manual will show you ways to recover from the error. Most of all, don't worry. Sit back, get comfortable, and learn how CalcStar can make your life easier.





2.3 MAKING COPIES OF YOUR DISKS

It is very important to make a working copy of your CalcStar system disk. Instructions for copying disks using the CP/M operating system follow. If you have an operating system other than CP/M, see your operating system reference manual.

- Boot your system

- Copy your operating system program and the CalcStar distribution disk onto a formatted, blank disk. See your operating system manual for instructions on formatting disks and copying your operating system program.

- To copy an entire disk:
  TYPE Pip B:=A:*.*
  Which means: Copy the information on the disk in drive A onto the disk in drive B.

- To copy specific files:
  TYPE Pip B:=A:filename
  Which means: Copy the file named from the disk in drive A onto the disk in drive B.

2.4 INSTALLING CalcStar

Your dealer may install your program for you. Installing means letting your program know which CRT terminal you are using. If you are doing the installing, we recommend that you follow the steps in METHOD 1. Installing CalcStar is fast and easy.

Here is some technical information for experienced users. New users can skip this paragraph and go on to METHOD 1. The installation program INSTCS provides three ways to configure CalcStar for your terminal. METHOD 1 reads a terminal description from a file named INSTCS.DAT on the CalcStar distribution disk. METHOD 2 makes use of the WS.COM file in your WordStar system. METHOD 3 allows you to manually specify a terminal description which can be stored in INSTCS.DAT in place of one you will not be using. All three create a file named TERMCAP.SYS.

2.4.1 METHOD 1 INSTALLING THROUGH INSTCS.DAT

This is the most often used method of installing the CalcStar program. In response to the operating system prompt (such as A>),

TYPE **INSTCS**

PRESS **RETURN**

which will display a sign-on page and then ask a question.

Normal first-time installation of CalcStar (Y/N)?

A reply of Y, will set you up for METHOD 1. You will see a table of terminal names and letters. Let us suppose your terminal is a TeleVideo 950, listed as selection 2.

The prompt will read:

Please enter selection:

TYPE **2**

PRESS **RETURN**

The prompt will read:

Current Terminal is TeleVideo 950
OK (Y/N):

A reply of Y will display the prompt:

Are the modifications now complete (Y/N)?

A reply of Y will display the name of the terminal selected and a message about your printer. The message means that any functioning printer will print your worksheets. No additional installation steps are required.

To conclude the installation process and return to your operating system,

TYPE **Y**

What has happened is this: INSTCS has retrieved the definition of the terminal from the file INSTCS.DAT and placed it into the file TERMCAP.SYS and CalcStar is now ready to go.

2.4.2 METHOD 2 INSTALLING THROUGH WordStar 3.0

If your response to the Normal first-time installation prompt is N (see METHOD 1 procedure), then you are presented with a further selection:

A Modification of existing installation

B Installation from WordStar version 3.0 file

<CTRL-O> modify database enable.

Please enter selection (A,B):

If you select B, you have chosen METHOD 2. This method allows CalcStar to use the same customization details you are using for your WordStar program.

You will be asked for the name of the WordStar file to be used. Precede the WordStar program file name, WS.COM with the name of the disk drive containing that file: e.g., enter A:WS.COM.
The screen will display:

CalcStar Terminal Installation Menu A

TYPE **U**

for no change.

The next prompt names the terminal installed through WordStar. If the terminal name matches the terminal you intend to use,

TYPE **Y**

At the next 2 prompts :

TYPE **Y**

This completes the installation. The data in WS.COM that CalcStar needs will be placed in TERMCAP.SYS, and CalcStar is ready for use. Note that INSTCS.DAT is not affected by this process.

2.4.3 METHOD 3 PATCHING FOR A TERMINAL NOT LISTED

If neither of the above methods applies to your situation, then you can use METHOD 3, a series of questions to which you must respond with hexidecimal values (or actual keystrokes, if applicable) regarding characteristics of your terminal.

Prior to such an installation, you will need the following terminal control code information: on keyboard cursor control keys (WordStar standard recommended); code used to position screen cursor; keys used for Escape, Backspace, Delete; required initialization and termination controls for terminal.

INSTCS uses two forms of input: the data in INSTCS.DAT, and keyboard entries. It always writes a new TERMCAP.SYS file, and it also may update INSTCS.DAT if you condition it to do so. The use of METHOD 3 may require the assistance of your dealer in determining the codes that must be filled in, but the information should be available in the manual that came with your terminal.

PROCEDURE: Begin as in METHOD 1. When you see the list of terminal titles 'CalcStar Terminal Installation Menu A' displayed:

TYPE **48**

PRESS **RETURN**

The number 48 refers to none of the terminals listed, so the prompt will read:

Current terminal is OK (Y/N) :

File Layout for TERMCAP.SYS

CONTENTS	ADDRESS	
Terminal name	00-17	*
Cursor right key	18	*
Cursor left key	1A	*
Cursor down key	1C	*
Cursor up key	1E	*
Next row first col	20	*
Escape	22	*
Delete	24	
Keyboard prefix	26	
Move left	28-2D	
Clear screen	2E-33	
Clear to end of line	34-39	
Highlight off	3A-3F	
Highlight on	3A-3F	
Lead in for cursor positioning	46-4D	
Column offset	4E	
Column/Row separator	50-53	
Row offset	54	
Terminator of cursor postioning sequence	56-59	
Row before column flag	5A	
Terminal end sequence	5C-65	
Terminal initialize sequence	66-6E	
Binary/ASCII digits	6F	

(All addresses are Hexidecimal offsets from the beginning of TERMCAP.SYS)

(*IF THE HIGH ORDER BIT IS SET IN ANY OF THE FOLLOWING CODES, IT IS PRECEDED BY THE KEYBOARD PREFIX CODE IN LOC 26)

A reply of Y will display the prompt:

Are the modifications now complete (Y/N) ?

TYPE **N**

to begin a series of questions you must answer about the characteristics of your terminal.

At the end of the questions, you may review your responses by answering N when asked if this is the end of the terminal patches. When you are satisfied that the parameters look right, reply Y to:

End of terminal patches (Y/N) :

A Y to the next prompt will cause TERMCAP.SYS to be written with the information you provided. INSTCS.DAT will be neither read nor written.

If you also want to update the INSTCS.DAT file you must type Y to the following prompt:

Save this definition in terminal database?

Typing Y to the final question will replace the existing terminal defined under the number you have chosen by the terminal you have just defined.

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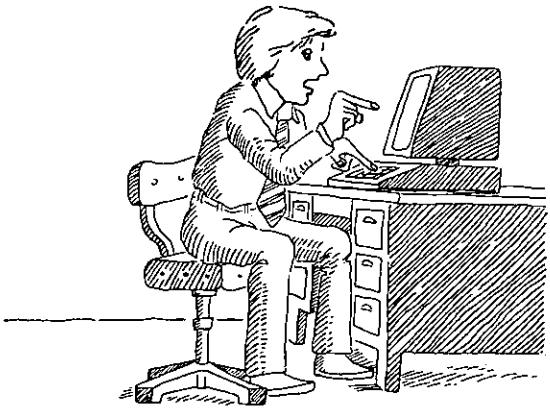


3 USING CalcStar

3.0 INTRODUCTION

You are now going to be introduced to the CalcStar main screen. First of all, turn on your machine's power and insert the proper disk, according to the requirements of your system. If you do not know how to boot your system, go back to Section 2.2 of this manual. Also, if you have not yet made a copy of your CalcStar disk, do so now. Refer to Section 2.3 of this manual for instructions. If you have not yet installed CalcStar, see Section 2.4 for instructions.

If you've done all of that, you are ready to begin using CalcStar.

3.1 TURNING CalcStar ON

Getting the CalcStar program on your screen is relatively simple. After turning on your computer, a system prompt will appear on your screen. At this prompt:

TYPE **CS**

PRESS **RETURN**

Several seconds later you will be greeted by a display of the CalcStar Main Screen.

3.2 I HAVE CalcStar ON MY SCREEN, NOW WHAT?

First let's take a look at the screen. As you can see, CalcStar is displayed in tabular form with alphabetic column headings and numeric row headings.

When preparing a document with CalcStar, you will be working with words, numbers, and formulas, entered as separate, changeable units of information. The location of each unit of information is defined by the intersection of a column and a row. For example, A13, B7, and CC156, are all sample coordinates, or cells, in which information can be entered.

To use an analogy, imagine looking at a wall of Post Office boxes. Now imagine that each row is identified by a number from 1 through 255 and each column is identified by a letter from A through DW. In CalcStar, cells are very similar to Post Office boxes.

One reason CalcStar saves you a great deal of time is because numbers and formulas in cells do not need to be erased when the information in the cell is changed. Instead, you simply change the information and then have CalcStar recalculate the entire worksheet automatically.

3.2.1 CalcStar TERMINOLOGY

Before the parts of the screen are introduced, there are some terms you need to become familiar with.

WORKSHEET refers to the entire table of data. The worksheet limits are 127 cells left-to-right (columns) and 255 cells top-to-bottom (rows). The actual amount of data that can be stored depends on the random access memory size in your computer. Up to 481 cells are available in a system with a 64k (bytes) memory.

CELL is the location on the worksheet where the information is stored. Cells correspond to coordinates on the CalcStar worksheet.

WINDOW is the portion of the worksheet you can actually see on your CRT screen. The computer display screen is limited in size, making it impossible to view all

of the available cells at one time. The window shows 10 or 15 rows, and from 1 to 15 columns. You can scroll other portions of the worksheet into the window by moving the cursor to that area.

ROWS are the lines of data in the horizontal direction. Rows are designated as 1, 2, 3, . . . 255.

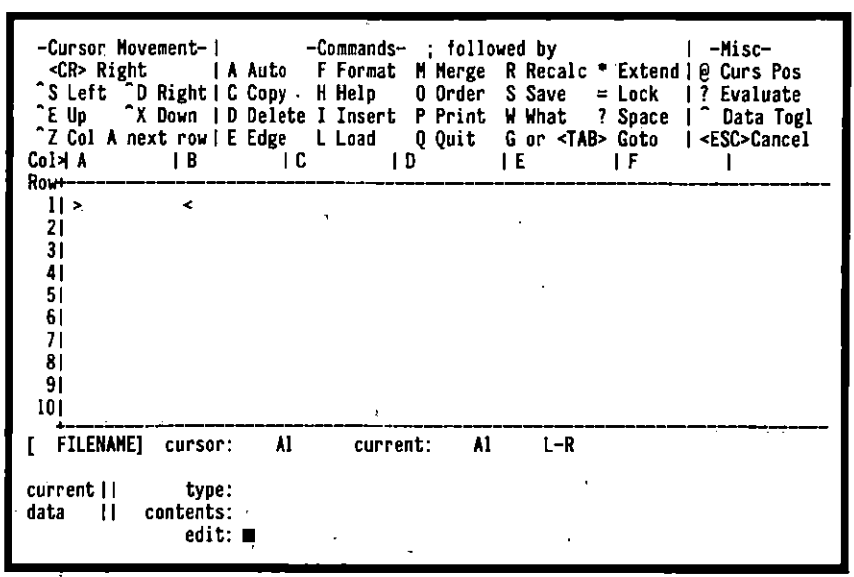
COLUMNS are the lines of data in the vertical direction. Columns are designated as A, B, C, . . . Y, Z, AA, AB . . . DW.

COORDINATES designate the intersection of a column and row with the column specified first. For example, D15 designates column D, row 15.

CURSOR is the symbol > < in the worksheet window. This is a different meaning for the word cursor than you may have encountered previously. In CalcStar the cursor is not the entry marker below the window on the edit or command lines.

3.3 VIEWING THE CalcStar WINDOW

As you can see, the CalcStar window has three unique sections. For clarity's sake, let's refer to them as the top, center, and bottom of the screen.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> A B C D E F
Row>
1 > <
2
3
4
5
6
7
8
9
10
[FILENAME] cursor: A1 current: A1 L-R
current data
type:
contents:
edit:

3.3.1 THE TOP OF THE SCREEN

The upper section of the main screen displays three different lists titled Cursor Movement, Commands, and Misc.

```
-Cursor Movement- |        -Commands-  ; followed by            | -Misc-
 <CR> Right      | A Auto   F Format  M Merge  R Recalc * Extend | @ Curs Pos
^S Left  ^D Right| C Copy   H Help    O Order  S Save   = Lock   | ? Evaluate
^E Up    ^X Down | D Delete I Insert  P Print  W What   ? Space  | ^ Data Togl
^Z Col A next row| E Edge   L Load    Q Quit   G or <TAB> Goto   | <ESC>Cancel
```

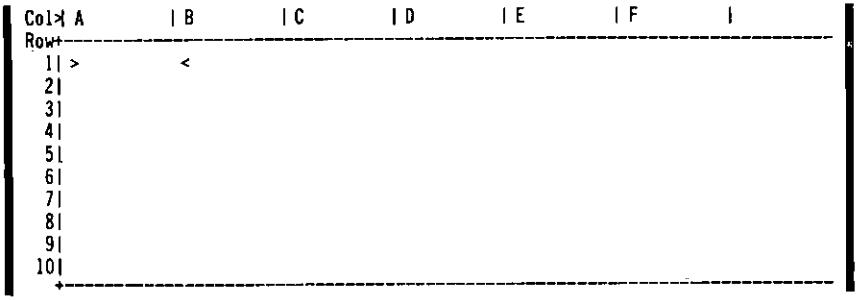
CURSOR MOVEMENT lists the keystrokes needed to move the cursor around in the CalcStar window. The ^ symbol, in this case, stands for your terminal's CONTROL key. To move the cursor in any given direction, you must hold down the CONTROL key (<CTRL>) and press the given letter. The letter does not have to be upper case. You will also notice <CR> Right. This means that by pressing the RETURN or ENTER key, the cursor will move one cell to the right, unless the order of calculation is changed from L-R to T-B.

COMMANDS are the commands recognized by the CalcStar program that perform specified operations. Next to -COMMANDS- you will see a semi-colon (;) and the words followed by. This means press the ; followed by any of the action keys on the Command list to perform the desired command. For example, if you wanted to use the Format Command, you would press ;F. For in-depth definitions of each of these commands and others, see Chapter 14.

MISC lists other functions recognized by the CalcStar program. Again, for an in-depth explanation of these functions and others, see Chapter 14. <ESC> cancels commands and functions. Press the ESCAPE key to cancel a command or function.

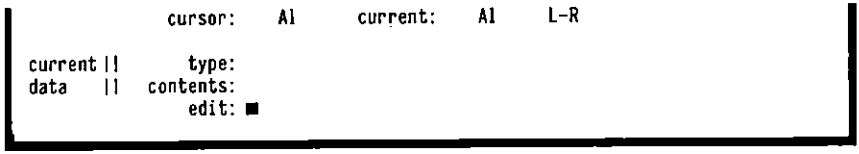
3.3.2 THE CENTER OF THE SCREEN

This is the section of the screen where all of your hard work shows. This is the window into the CalcStar worksheet. The window allows you to view a worksheet as it stands, including results of numeric calculations that have been entered up to that point.



3.3.3 THE BOTTOM OF THE SCREEN

The bottom portion of the main screen is called the current data area. Program prompts, messages, and your own entries are displayed in this area along with the content and status of your worksheet as it is being developed.



FILENAME DISPLAY: When a worksheet is saved, it becomes a disk file. The name assigned to such a file is displayed in the upper left corner of the current data area.

CURSOR LOCATION: Displays cell coordinate in which the cursor is located.

CURRENT ENTRY INDICATOR: Displays cell coordinate in which your entry will be placed. While you are typing an entry, the cursor location can be changed, but the current entry location remains fixed.

DIRECTION INDICATOR: Displays order of calculation. L-R display means left-to-right. T-B display means top-to-bottom.

MEMORY LOW: If a memory low message is displayed, save your work on a disk. You can then reload your file for a final edit without fear of losing most of your entries. You may need to divide your worksheet into two or more parts, i.e. separate files, if the number of entries required is beyond your computer's memory capacity or 481 cells, CalcStar's present limit, on a 64k system.

TYPE OF ENTRY AND JUSTIFICATION LINE: Displays entry type as text, numeric, or empty, but allocated. For data entry purposes, disregard the empty, but allocated notice.

CONTENTS LINE: Displays a prior entry at cursor location as it was typed. For numeric entries, contents indicator shows any formula entered. Corresponding cell on worksheet shows result of calculation.

EDIT LINE: Displays text or numeric entries as they are typed.

COMMAND LINE: Several kinds of information are displayed on the command line, including command prompts, error or instruction messages, and off-worksheet calculation results.

The vertical lines to the right of current and data merely separate that area title from the type and contents labels.

3.4 ALL ABOUT THE CalcStar CURSOR

You are now ready to use the CalcStar program. The first thing you are going to do is move the cursor around the window. If for any reason the CalcStar window is not on your screen, get it back on the screen.

TYPE **CS**

PRESS **RETURN**

Look at the Cursor Movement section on the top left of your screen. To move the cursor you will use the <CTRL> key and the S, E, Z, D, and X keys. Look at the placement of these keys on your keyboard. They are strategically placed under the fingers of your left hand. With a little practice you will be able to move the cursor around in the CalcStar window with ease.

3.4.1 MOVING THE CURSOR AROUND THE WINDOW

CTRL E (^E) will move the cursor straight up one row from its present position, unless it is in row 1, then it will not move.

CTRL D (^D) will move the cursor one column to the right from its present location unless the cursor is in column DW, then it will not move.

CTRL S (^S) will move the cursor one column to the left of its present location, except when the cursor is in column A, then there is no movement.

CTRL X (^X) will move the cursor straight down one row from its present location, except when it is in row 255, then it will not move.

CTRL Z (^Z), depending upon the position of the direction indicator, will move the cursor to the first column of the next row if the direction is left-to-right, or it will move the cursor to the first row of the next column if the direction indicator is top-to-bottom.

RETURN will move the cursor one column to the right if the direction indicator is left-to-right, or one column down if the direction indicator is top-to-bottom.

3.4.2 PRACTICING CURSOR MOVEMENTS AND COMMANDS

The time has finally come. You are now ready to begin entering information into the CalcStar worksheet. If, for any reason, the CalcStar worksheet is not on your screen, get it back on your screen.

TYPE **CS**

PRESS **RETURN**

The cursor should be in cell A1. If it is not, move it to cell A1 using the cursor controls. In cell A1 you are going to enter the word practice.

TYPE **PRACTICE**

PRESS **RETURN**

Look down at the type line in the bottom portion of your screen. It will say:

type: text: left justified

All text entries are left justified unless you tell CalcStar to do otherwise. You will learn how to do that in another application.

Using the RETURN key, move the cursor to cell B1. In this cell you are going to enter the number 1.

TYPE **1**

PRESS **RETURN**

Again, look at the type line. It reads:

type: numeric

Numeric entries are always right justified. They can not be any other way.

Now let's see just how big the CalcStar worksheet actually is. It is 255 rows down and DW columns across so it is 255 rows by 127 columns. Move the cursor to cell A255. Before you begin wearing out your finger, there is another way to move the cursor. You can move the cursor by pressing the TAB key.

PRESS **TAB**

In the bottom left of your screen will appear:

goto > A1

If you pressed RETURN, the cursor would move to cell A1. But, you don't want to go to cell A1. You want to go to cell A255.

TYPE **A255**

The prompt will read:

goto > A255

The A255 overwrote A1.

PRESS **RETURN**

You should now be in cell A255. Look at the current location. It will read:

A255

You will also notice that the numbers continue past 255, but if you try to move the cursor below 255, the cursor will not move. Don't worry about any of the row numbers past 255, they are just there for aesthetics.

Now move the cursor back to cell A1.

PRESS **TAB**

The prompt will read:

goto > A1

PRESS **RETURN**

Go ahead and play around with CalcStar for awhile. Get used to the Cursor Controls and the layout of the worksheet. Don't worry about doing something wrong and destroying the CalcStar program. As was said before, don't worry. Sit back, get comfortable, and learn to use CalcStar to make your life easier.

When you are done practicing, you will learn the Delete and Quit Commands.

Are you done?

The first thing you are going to do is remove everything from the CalcStar screen. The command you will use is the Delete Command. This command is used to delete information that has already been entered into the worksheet.

TYPE **;D**

The prompt will read:

Delete: A)ll R)ow C)olumn E)ntry

In this case, you want to delete everything, so you will press A.

TYPE **A**

By typing A, all of the information that has been entered into the memory since the last time the Save Command was used, will be deleted. Since you have not saved anything, everything will be deleted.

The prompt will read:

verify Y/N –

Since this is a very powerful command, CalcStar wants to make sure you really want to get rid of this information.

TYPE **Y**

All of the information is gone and you have a blank CalcStar screen in front of you.

You are now going to learn to use the Quit Command. You use the Quit Command when you do not want to use the CalcStar program anymore.

TYPE **;Q**

The prompt will read:

verify Y/N –

Again, CalcStar asks you to verify this command because if the CalcStar program is exited and there is a file in the memory that has not been saved, that file will be gone forever, unless you re-enter it again.

TYPE **Y**

The system prompt will appear in the upper left of your screen.

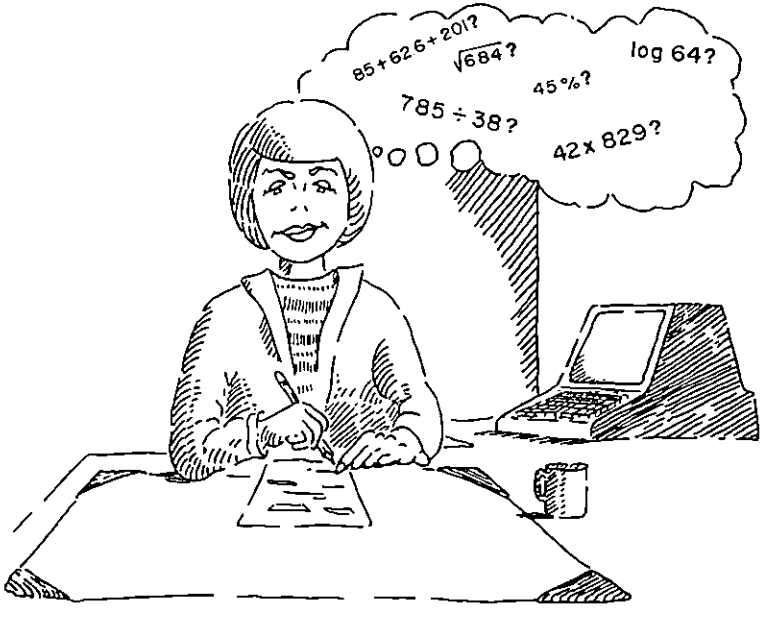
3.5 CHAPTER REVIEW

In this chapter you were introduced to the three different portions of the CalcStar screen, learned the Cursor Controls and practiced them. You entered text and numeric information into the CalcStar worksheet and you learned the commands: TAB, Delete, and Quit. Now go on to the next chapter, **USING CalcStar AS A CALCULATOR** to continue to discover the fantastic abilities of the CalcStar program.

4 USING CalcStar AS A CALCULATOR

4.0 INTRODUCTION

The CalcStar program can calculate by using the Evaluate Function, just like a calculator. Calculations can be performed independently of the CalcStar worksheet.



4.1 TURNING CalcStar INTO A CALCULATOR

The Evaluate Function recognizes all the Arithmetic and System Functions used in the CalcStar program. In this chapter you will be introduced to the Arithmetic Functions + (addition), − (subtraction), * (multiplication), / (division), and % (percentage); and the System Functions ** (powers), SQRT (square root), EXP (exponential), LN (natural logarithm), LOG (common logarithm), and ABS (absolute value).

How does CalcStar know not to enter an Evaluate Function into the worksheet?

Following an equation to be calculated you must enter a ?. The ? tells CalcStar that you want to know the answer to the equation but you do not want the value entered into the worksheet. The answer to the equation will appear in the bottom left corner of the screen and will be accurate to 12 decimal places.

4.2 TRUNCATING DECIMALS

It is not possible to change the decimal precision of a value while using the Evaluate Function. Every answer displayed on the bottom left of your screen will contain 12 decimal places. To make calculations easier, truncate the decimal to the precision needed before continuing with the calculations.

The CalcStar program truncates decimals, it does not round them. When a decimal is truncated, the number preceding the point of truncation is not rounded off. For example, if the value 65.468 were rounded to two decimal places the answer would be 65.47, but if it were truncated the answer would be 65.46.

4.3 THE ORDER OF CALCULATION

When evaluating equations, CalcStar uses a standard order of calculation. This order is determined by the mathematical operations used and by the placement of parentheses.

The order of calculations of the mathematical operations is left-to-right with all multiplication and division being performed first and then the additions and subtractions are performed. Again, from left-to-right. When parentheses are used, the operations in parentheses are performed first and then the multiplications and divisions are performed and then the additions and subtractions.

Before you try the following examples, get the CalcStar window onto your screen.

TYPE **CS**

PRESS **RETURN**

TYPE **12*10+20−4/2?**

The answer is 138.

CalcStar solved the equation in the following order:

12*10=120

4/2=2

120+20−2=138

Using the same values in the same order but with parentheses,

TYPE **12*(10+20)−4/2?**

The answer is 358.

CalcStar evaluated the equation in the following manner:

(10+20)=30

12*30=360

4/2=2

360−2=358

Let's use the same values in the same order one more time.

TYPE **12*((10+20-4)/2)?**

The answer is 156.

CalcStar evaluated the equation in the following manner:

10+20-4=26

26/2=13

12*13=156

Using the same values, arranged in the same order, you received 3 different answers because of the position or absence of parentheses. When you are entering equations into CalcStar, remember the order of calculation used by the program.

4.4 EXAMPLES

Try the following examples to learn how the Evaluate Function, and some of the Mathematical Functions work. The first example uses the Arithmetic Functions + and −. The second example uses the Arithmetic Functions *, /, and %. The third example uses the System Functions ** and SQRT. The System Function EXP is introduced in the fourth example. The System Function LOG is used in the fifth example. The sixth example introduces LN, and the final example introduces ABS.

4.5 CALCULATIONS USING + AND −

Here's a little practice exercise for math game fans:

Arrange the digits 1, 2, 3, 4, 5, 6, 7, 8, and 9 in succession using each one only once and, with the aid of plus and minus signs as desired, produce a sum of 100.

Play around with this problem for a while using the CalcStar Evaluate Function. There are at least two correct answers. Do you give up or do you think you have the correct answer?

The correct answer is either:

123−45−67+89? or
123+45−67+8−9?

4.6 CALCULATIONS USING *, /, and %

You want to determine how much money you made last week, before taxes. You worked 42.5 hours and you are paid $7.45 per hour.

TYPE **42.5*7.45?**

The answer 316.625 will appear on the bottom left of the screen.

You now know your salary before taxes, but you want to determine your take-home salary. In order to do this, you must figure out how much money will go for taxes and other deductions and then, subtract that amount from 316.62. You know from previous paychecks that approximately 22% of your salary is deducted for taxes and the like. To determine your take-home pay,

TYPE **316.62−22%316.62?**

The answer will appear on the left side of your screen.

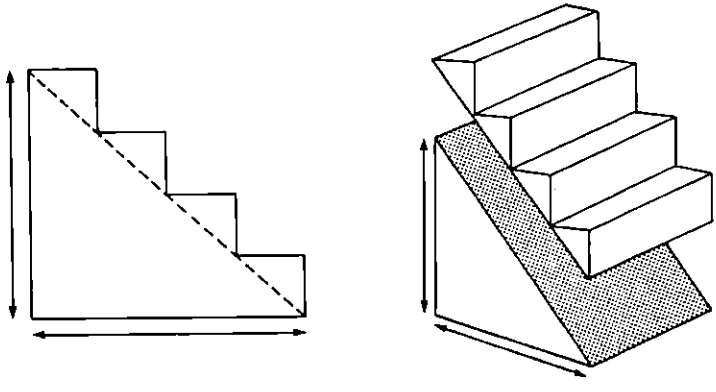
You brought home $246.96 per week. How much did you actually earn each day?

TYPE **246.96/5?**

Your average daily earnings after taxes and deductions was $49.39.

4.7 CALCULATIONS USING ** and SQRT

You are going to replace the steps to the entrance of your business with a ramp. The steps have a 28" rise and a 52" run. (A 90 degree angle is formed between the top step and the ground.) To determine the length of the ramp, you will use the formula $a^2+b^2=c^2$. Your equation is $28^2+52^2=c^2$. To determine the answer to this equation using CalcStar, you would



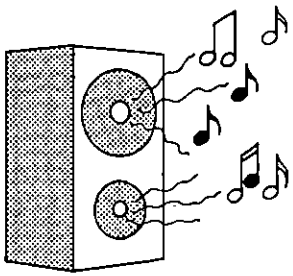
TYPE **(28**2)+(52**2)?**

You now know that $3487.98=c^2$

To determine what c equals, you must take the square root of 3487.98

TYPE **SQRT(3487.98)?**

The length of your ramp is 59.05".



4.8 CALCULATIONS USING LOG

What does LOG mean? It stands for common logarithm or the logarithm in base 10. In symbols:

If $x=10^y$, then $y=\log_{10}x$, or, $y=\log x$

How many decibels of gain is provided by an amplifier with 12mw (milliwatts) of input power when the output power is 56 watts?

The Formula needed to solve this equation is:

$dB=10\log P_{OUT}/P_{IN}$

where P_{IN} is the input power (in watts) and P_{OUT} is the output power (in watts). To enter this equation into CalcStar,

TYPE **10*LOG(56/(12*10**-3))?**

Your answer is 36.69 decibels.

4.9 CALCULATIONS USING EXP

You have invested $1400 at a rate of 8% per annum compounded annually. How much money will you have at the end of 8 years?

To figure out this problem you will use the formula

$A=P(e)^{I(t)}$

where P is the principal, I is the interest, t is the time in years, and e is the number 2.7182818. Your equation would look like this:

$A=1400(e)^{.08*8}$

Using CalcStar to solve this equation, you would

TYPE **1400*EXP(.08*8)?**

The answer is $2655.07. You have increased your savings by $1255.07.

4.10 CALCULATIONS USING LN

What does LN mean? Natural logarithm. What is a natural logarithm? A natural logarithm is similar to a common logarithm, but instead of using a base of 10, a natural logarithm has the irrational number 2.71828... as the base. The symbol for this irrational number is e. In symbols:

If $x=e^y$, then $y=LN(x)$

Solve the following equation:

$LN(25)+ LN(e^{3.4})$

TYPE +**LN(25)+LN(+EXP(3.4))?**

The answer is 6.6.

4.11 CALCULATIONS USING ABS

The absolute value of a non-zero number is the corresponding positive number: thus the absolute value of 3 is 3 and the absolute value of −3 is 3. The absolute value of 0 is 0.

So you can see what the absolute value of a number means:

TYPE +**ABS(−4)?**

The answer is 4.

Now try the absolute value of −70+3.

TYPE +**ABS(−70+3)?**

The answer is 67.

Now try the absolute value of 5.

TYPE +**ABS(5)?**

The answer is 5.

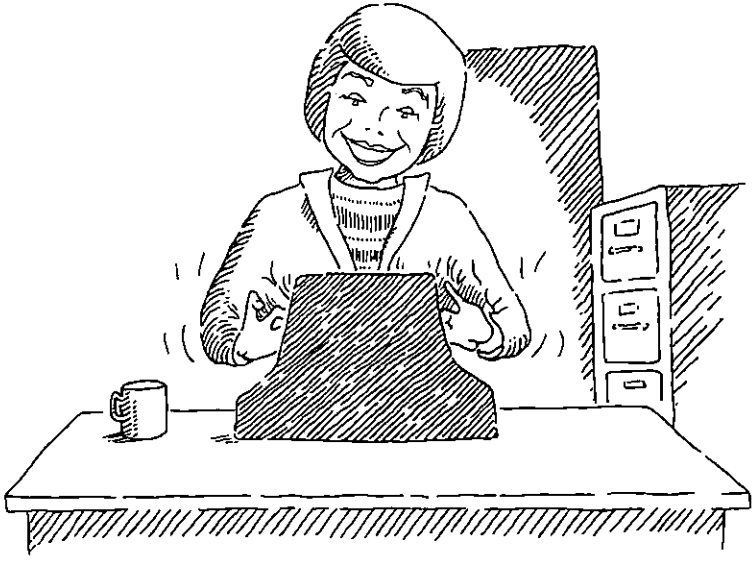
This time, try a more complicated example,

TYPE +**ABS(−245/−5)*32**

The answer is 1568.

4.12 CHAPTER REVIEW

In this chapter you have learned how to use the CalcStar program as a calculator. You have also learned to use the Arithmetic Functions +, −, *, /, and %; and the System Functions **, SQRT, EXP, LN, LOG, and ABS. You will use many of these functions again in later examples, plus learn the many other Mathematical Functions recognized by CalcStar.



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5 BALANCING YOUR CHECKBOOK—PART I

5.0 INTRODUCTION

Now that you are familiar with the cursor controls and a few of the CalcStar commands, you are ready to use CalcStar to solve some simple problems. In this chapter you will begin learning how to use CalcStar to balance your checkbook. You will use the Commands introduced in the previous chapter: Delete, Format, and Goto and the Arithmetic Functions + and −. You will also learn many new Commands and Text Functions. Don't worry. It's not as difficult as it sounds. You are already familiar with the task of balancing a checkbook by hand. Each command and function is explained in detail. In no time at all you will be a whiz at using these commands and functions.

5.1 REVIEWING THE DELETE COMMAND

If the CalcStar window is on your screen, follow steps 1 through 3 below. If the CalcStar window is not on your screen,

TYPE **CS**

PRESS **RETURN**

STEP 1

TYPE **;D**

When the prompt reads:

Delete: A)ll R)ow C)olumn E)ntry

STEP 2

TYPE **A**

You will be asked for verification of the deletion.

The prompt will read:

verify – Y/N

STEP 3

Since you want to delete everything from the memory,

TYPE **Y**

You are now ready to balance your checkbook. The screen in front of you should contain a blank CalcStar window.

5.2 THE GOTO COMMAND

The first matter of business is to label the columns you will be using. The columns will be labeled: CHECK #, ISSUE/DEPOSIT DESCRIPTION, CHECK AMOUNT, DEPOSIT AMOUNT, and BALANCE.

You will begin entering the label headings in cell B1. To get there, use the Goto Command.

STEP 1

The Goto Command is ;G (or the TAB key).

TYPE **;G**

The prompt will read:

goto > A1

You want to get to cell B1.

STEP 2

TYPE **B1**

PRESS **RETURN**

The cursor will go to cell B1.

5.3 FORMATTING COLUMN WIDTH

You are going to format column B to a width of 20 spaces instead of 10 spaces. You will be using the Format Command (;F).

STEP 1

TYPE **;F**

The prompt will read:

P)recision (2) or W)idth (10) or F)orm mode (clear)

STEP 2

Since you want to change the width,

TYPE **W**

The prompt will then read:

Column B Width (3..63)

TYPE **20**

PRESS **RETURN**

because you want the column to be 20 spaces wide.

5.4 CENTERING TEXT ENTRIES

TYPE **ISSUE/DEPOSIT**

PRESS **RETURN**

The text ISSUE/DEPOSIT will appear in cell B1. Don't you think it would nicer if it were centered? To center a text entry, keep the cursor in cell B1.

TYPE **/C**

PRESS **RETURN**

Now it is centered. That is what the /C does. /C is a text function that centers text within a cell.

Now go to cell C1, by pressing RETURN again. Using the Format Command, format this column to a width of 8 spaces, instead of the standard 10 spaces.

5.5 RIGHT JUSTIFYING ENTRIES

TYPE **/RCHECK**

TYPE **RETURN**

The text CHECK is entered in cell C1. You will notice that CHECK is right justified, although you would expect it to be left justified because it is text. When you originally entered CHECK there was a /R entered in front of it. The /R automatically right justified the text CHECK. There are two ways to justify text, either by entering /C, /L or /R after the text has been entered into a cell or by entering /C, /L or /R into the cell along with the text. When you enter /C, /L or /R in front of any entry, the CalcStar program reads the entry as a text entry.

Go to cell D1.

Format the column to a width of 8 spaces, using the ;F command.

TYPE **DEPOSIT**

PRESS **RETURN**

You will see that the text is left justified. All text entries are left justified. It looks alright, but you want this entry to be right justified. To right justify a text entry,

TYPE **/R**

PRESS **RETURN**

DEPOSIT will move to the right of the cell.

Go to cell A2. Format the column to a width of 8 spaces.

TYPE **/CCHECK #**

PRESS **RETURN**

5.6 COLUMN FORMATTING ON YOUR OWN

Go to B2 and center DESCRIPTION.

Go to cell C2 and TYPE AMOUNT. Right justify AMOUNT.

Go to Cell D2 and TYPE AMOUNT, again right justified.

The final column heading is BALANCE.

Go to cell E2, format the column to 8 spaces, and enter the heading and right justify it.

5.7 INSERTING COLUMNS

Oh no. You forgot to make a column for the check/ deposit date. No problem. Move the cursor to cell B2. You will use the Insert Command (;I).

TYPE **;I**

The prompt will read:

Insert: R)ow C)olumn

Since you want to insert a column, you will type C.

TYPE **C**

A column will be inserted at column B and the column formerly in that position will be moved one column to the right.

Now, format column B to 8 spaces,

TYPE **DATE**

PRESS **RETURN**

and center the entry.

5.8 THE REPEAT FUNCTION

The headings just entered would stand out more if they were underlined. Go to cell A3 to practice underlining.

There are two different methods you can use to underline the headings. The first way, and the most time consuming, is to strike the - until all of the spaces under the headings are filled. The other way is much quicker and won't wear out your finger.

STEP 1

Move the cursor to cell A3,

TYPE /=-

PRESS **RETURN**

This is the repeat function. The /= is the actual function, the - tells CalcStar what symbol is to be repeated throughout the cell. Thus, if you wanted to fill a cell with x's, you would enter /=x. The cell would fill with x's. Okay, you have filled A3 with -'s.

Now to fill the rest of the cells. Again, there is an easier way than entering the /= function at each cell.

STEP 1

Enter the Copy Command (;C).

TYPE **;C**

The prompt will read:

From coord (>coord):

STEP 2

TYPE **A3**

PRESS **RETURN**

The prompt will now read:

To coord (>coord):

STEP 3

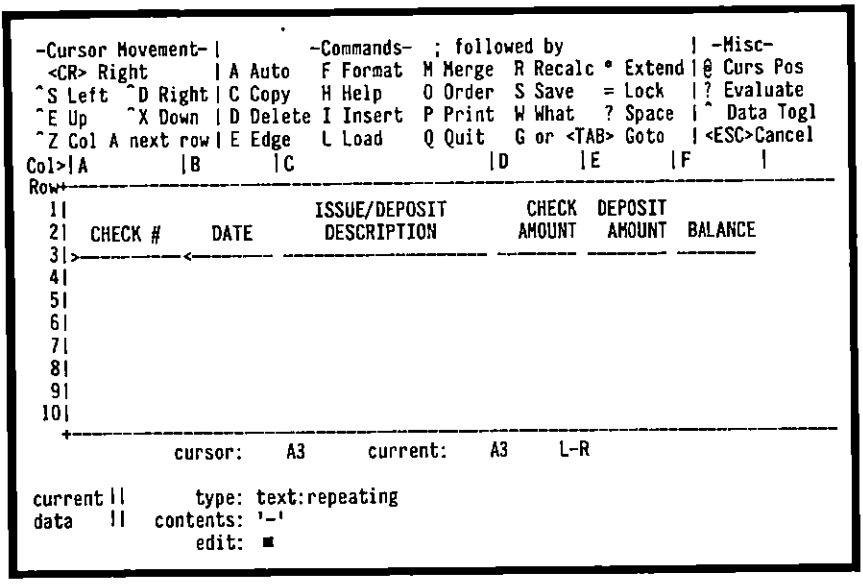
Since you want the other cells to contain the same information that cell A3 contains,

TYPE **B3>F3**

PRESS **RETURN**

The information contained in cell A3 will be copied into cells B3 through F3. After you have entered the above information, the headings will be underlined.

Compare your screen to the illustration.



5.10 THE COMMENT FUNCTION

Now, go to cell F4. You will enter your beginning balance here.

TYPE **1250.00\BEGINNING BALANCE**

(Make sure you enter a \ and not a /. Some keyboards do not have a \, in which case the Comment Function is not available.)

When you enter this, notice the words BEGINNING BALANCE do not appear in the cell, but they do appear on the contents line at the bottom of your screen. The \ is the Comment Function. Anything that is placed behind the \ will not appear in the CalcStar window, but will be seen on the contents line. It will not be on the printout either. This allows you to insert comments for your benefit.

5.11 CHAPTER REVIEW

This is the end of Chapter 5. The application, BALANCING YOUR CHECKBOOK, is continued in Chapter 6. If you want to quit the CalcStar program for a while before continuing this example, continue onto sections

5.12 and 5.13, SAVING A FILE and QUITTING THE CALCSTAR PROGRAM. If you want to continue this example, turn to CHAPTER 6 and begin at section 6.2.

5.12 SAVING A FILE

Now it's time to save all of your work. For this you need the Save Command. What else?

STEP 1

TYPE **;S**

The prompt will read:

File name

STEP 2

Choose a name for your worksheet file, but it can be no longer than 8 characters. It's a good idea to pick a name that is relevant to the information contained in the file. Why don't you name this file CHEKBOOK.

TYPE **CHEKBOOK**

PRESS **RETURN**

Now the prompt will read:

Password (<cr>=none)

STEP 3

You can protect your file from unauthorized use and deletion if you pick a password. Again, a password can contain no more than 8 characters. Go ahead and pick a password. Something easy to remember. Enter it. (If you do not want a password, PRESS RETURN.)

OPTIONAL

If you choose a password, the prompt will read:

Again?

RE-TYPE **your password**

If a different word is entered, the Save Command is aborted and you are returned to the edit line. When you enter your correct password, it will not be shown on the screen.

If you reenter the same password or if you did not choose to enter a password the prompt will read:

P)artial or A)ll

STEP 4

You will save all of this worksheet file.

TYPE **A**

Once you type A, your worksheet file will be saved on the logged disk drive.

5.13 THE QUIT COMMAND

Be very careful when you use the Quit Command. When the Quit Command is used, the worksheet is deleted from memory. If the worksheet was not saved it is gone forever, unless you want to reenter it!!

STEP 1

TYPE **;Q**

The prompt will read:

verify Y/N -

CalcStar is checking to make sure you really want to quit. If you enter N, the quit command is aborted and control returns to the edit line.

STEP 2

TYPE **Y**

The CalcStar window will disappear from the screen and the system prompt will appear in the upper left-hand corner of the screen.

6 BALANCING YOUR CHECKBOOK—PART II

6.0 INTRODUCTION

This chapter continues with the application BALANCING YOUR CHECKBOOK begun in Chapter 5. If you are continuing without previously saving the file, go to Section 6.2, otherwise begin here.

TYPE **CS**

PRESS **RETURN**

When the CalcStar window is on your screen, you will use the Load Command to load the CHEKBOOK file into your system's memory.

6.1 LOADING A FILE

All files are assigned names when they are saved onto a disk. To get the file from the disk onto your screen, the file must be loaded into the computer's memory.

STEP 1

TYPE **;L**

The prompt will read:

File name: (make sure file is saved)

STEP 2

TYPE **CHEKBOOK**

PRESS **RETURN**

If you saved your file using a password, enter your password now.

If you entered your password correctly or did not use a password, the prompt will read:

Load position : A1

STEP 3

PRESS **RETURN**

The CHEKBOOK worksheet will appear on your screen.

6.2 CHANGING THE DECIMAL PRECISION

Since you have previously entered the headings, you will now need to enter the check number, the date, the description, and the amount of each check or deposit.

Go to cell A5. Your first check number is 101.

STEP 1

TYPE **101**

PRESS **RETURN**

CalcStar reads 101 as a numeric entry, so it is right justified, and it has two decimal places. To get rid of the decimal places use the Format Command (;F).

STEP 2

TYPE **;F**

The prompt will read:

P)recision (2) or W)idth (8) or F)orm mode (clear)

STEP 3

To change the decimal precision,

TYPE **P**

When the prompt reads:

Column A Precision (0..12)

STEP 4

Enter the decimal precision needed. In this case it is 0.

TYPE **0**

PRESS **RETURN**

101.00 will change to 101. But the heading CHECK # is centered. But CalcStar read 101 as a numeric entry and numeric entries can't be centered. How do you tell CalcStar that you want 101 read as a text entry, not a numeric entry?

6.3 CHANGING A NUMERIC ENTRY TO A TEXT ENTRY

With the prompt still at A5,

TYPE **/C101**

PRESS **RETURN**

The entry will be centered. Why was it centered this time and not before? Because, by entering a /C you told CalcStar that a text entry was about to be made. Text entries can be centered, therefore /C101 was centered.

Move the cursor to cell B5 to enter the date the check was written. The check was written on July 20.

TYPE **JUL 20**

PRESS **RETURN**

Now go to cell C5 and enter who the check was made out to. You bought groceries at the Groceries-To-Go Store.

TYPE **GROCERIES-TO-GO**

PRESS **RETURN**

In fact, you bought $110 worth of groceries. Go to cell D5 and enter the check amount.

Before we go to the next check, look at the type line at the bottom of your screen, with the cursor at cell D5. Does it say text or numeric? If it says numeric, you entered $110 correctly. If it says text, something is wrong. Did you put a $ in front of the 110? If you did, CalcStar read the $, and assumed the entry was text. In order to have $110 read as a numeric entry, and this is what you want so calculations can be performed with this entry,

TYPE **110**

PRESS **RETURN**

The $110 is deleted from the cell and is replaced by 110.00.

6.4 THE TEXT/NUMERIC DATA TOGGLE

Go to cell A6. The next check is number 102. Another way to enter 102 as a text entry, besides placing /C in front of it, is to use the Text/Numeric Data Toggle. If you have already entered 102 into cell A6, delete it. Make sure you only delete that one entry.

With the cursor at A6,

TYPE **102^**

PRESS **RETURN**

(On most keyboards the ^ symbol is on the same key as the number 6.) The ^ works as a toggle switch. If the entry is normally text, enter a ^ behind the entry and it becomes a numeric entry. Enter a ^ behind a numeric entry and it becomes text.

After entering 102^,

TYPE **/C**

PRESS **RETURN**

to center the entry.

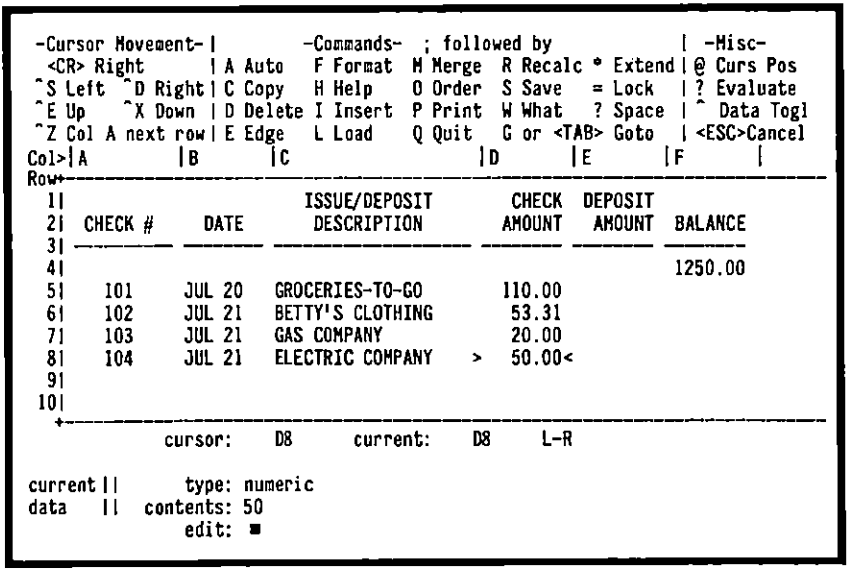
Check 102 was written on July 21 to Betty's Clothing for $53.31. Enter the information in the proper cells.

6.5 PRACTICE

By now you're probably getting the hang of it. Let's see how you do on this one.

On July 21 you wrote out checks 103 and 104. Check 103 went to the Gas Company and number 104 went to the Electric Company. The previous month you used $20 worth of gas and $50 worth of electricity. Using this information, enter it into the worksheet.

Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format H Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>|A |B |C |D |E |F |
Row+
1| ISSUE/DEPOSIT CHECK DEPOSIT
2| CHECK # DATE DESCRIPTION AMOUNT AMOUNT BALANCE
3| ——— ——— ——— ——— ——— ———
4| 1250.00
5| 101 JUL 20 GROCERIES-TO-GO 110.00
6| 102 JUL 21 BETTY'S CLOTHING 53.31
7| 103 JUL 21 GAS COMPANY 20.00
8| 104 JUL 21 ELECTRIC COMPANY > 50.00<
9|
10|
cursor: D8 current: D8 L-R
current || type: numeric
data || contents: 50
edit: ■

6.6 SUMMING YOUR ENTRIES

After paying all the bills it is finally pay day. Move the cursor to B9. There is no entry in the A column because there is no check number.

In the DATE column,

TYPE **JUL 30**

PRESS **RETURN**

In the ISSUE/DEPOSIT DESCRIPTION column,

TYPE **PAYCHECK**

PRESS **RETURN**

Do not make an entry in column D, because that is for check amounts.

Move over to column E, row 9. Column E is labeled DEPOSIT AMOUNT.

Enter the amount of the paycheck, $1,570.00. When you enter the amount, remember, no $ and also, do not enter the comma.

TYPE **1570**

PRESS **RETURN**

6.7 REVIEWING + AND −

It's time to pay the bills again, but first you should determine how much money you have in your checking account. You know that your checkbook balance is determined by subtracting the total monies in checks from the total of your deposits.

Go to cell F5. This cell is in the BALANCE column. To determine the amount of money you have, you will need to add your previous balance to any new deposits and then subtract the amount of the check. Your previous balance is contained in cell F4. You will want to add that to any new deposit. If there was a deposit in

this row, it would be contained in cell E5. Now you will want to subtract the amount of any check that may be in this row. The amount of the check would be entered in cell D5. Your equation for determining the balance of your checkbook as of July 20, is (F4+E5−D5). Try it.

TYPE **(F4+E5−D5)**

PRESS **RETURN**

The number 1140.00 should appear in cell F5.

6.8 COPYING RELATIVE EQUATIONS

Now you need to determine the balance of your checkbook as of your last paycheck. Do you have to refigure the equation for each row? Remember earlier when you used the Copy Command (;C) to copy -'s to each cell in a row? You can do the same thing with formulas.

STEP 1

TYPE **;C**

When the prompt reads:

From coord (>coord):

STEP 2

You want to copy the formula from cell F5.

TYPE **F5**

PRESS **RETURN**

When the prompt reads:

To coord (>coord):

STEP 3

TYPE **F6>F9**

PRESS **RETURN**

The > symbol stands for through. F6>F9 means the formula will be copied into cells F6, F7, F8, and F9.

The prompt will then read:

R)elative or N)o adjustment?

STEP 4

TYPE **R**

since the equation needs to be adjusted for each cell location. This tells CalcStar to adjust the coordinates in the formula to correspond to the cell location. For instance, the formula you entered into cell F5, (F4+E5−D5), would not be relevant if it were entered into cell F6, in the same form. Since you entered that the formula was relative, CalcStar will adjust the formula to read (F5+E6−D6) in cell F6. The formula will be adjusted in a similar manner at each cell location.

Your screen should look like the illustration.

```
-Cursor Movement- |        -Commands-  ; followed by          | -Misc-
  <CR> Right      | A Auto   F Format  M Merge  R Recalc * Extend | @ Curs Pos
 ^S Left  ^D Right| C Copy   H Help    O Order  S Save   = Lock   | ? Evaluate
 ^E Up    ^X Down | D Delete I Insert  P Print  W What   ? Space  | ^ Data Togl
 ^Z Col A next row| E Edge   L Load    Q Quit   G or <TAB> Goto  | <ESC>Cancel
Col>|A        |B       |C                    |D       |E       |F       |
Row+-------------------------------------------------------------------------
  1|
  2|  CHECK #     DATE       ISSUE/DEPOSIT        CHECK    DEPOSIT
  3|  --------  --------  --------------------  -------  -------  -------
  4|                                                                1250.00
  5|     101     JUL 20   GROCERIES-TO-GO          110.00          > 1140.00<
  6|     102     JUL 21   BETTY'S CLOTHING          53.31            1086.69
  7|     103     JUL 21   GAS COMPANY               20.00            1066.69
  8|     104     JUL 21   ELECTRIC COMPANY          50.00            1016.69
  9|              JUL 30   PAYCHECK                          1570.00  2586.69
 10|
   +-------------------------------------------------------------------------
              cursor:    F5       current:    F5     L-R

current ||       type: numeric
data    ||   contents: (F4+E5-D5)
               edit: ■
```

6.9 CHAPTER REVIEW

You have now completed the second part of the Checkbook Balancing example. If you want to continue with this application, go directly to Chapter 7, section 7.2. If you want to stop using CalcStar for a while continue with sections 6.10 and 6.11.

6.10 SAVING A FILE

Now it's time to save all of your work.

STEP 1

TYPE **;S**

If the file has been saved previously, the prompt will read:

File name : CHEKBOOK

PRESS **RETURN**

The next prompt will read:

File exists. Destroy old contents (Y,N)?

TYPE **Y**

If the file was not previously saved, you should:

STEP 2

TYPE **CHEKBOOK**

PRESS **RETURN**

The prompt will read:

Password (<CR>=none)

OPTIONAL

A password can contain no more than eight characters. If you want to protect your file with a password,

TYPE **the password**

PRESS **RETURN**

If a password is entered, the prompt will read:

Again :

TYPE **the password again**

If you re-enter the same password or if you did not choose to enter a password the prompt will read:

P)artial or A)ll

STEP 4

You will save all of this worksheet file.

TYPE **A**

Once you type A, your worksheet file will be saved on the logged disk drive.

6.11 THE QUIT COMMAND

One more command and you will finish your first complete CalcStar worksheet example. The final command is Quit. Be very careful when you use the Quit Command. When the Quit Command is used, the worksheet is deleted from memory. If the worksheet was not saved on a disk, it is gone forever, unless you want to reenter it!!

STEP 1

TYPE **;Q**

The prompt will read:

verify Y/N –

CalcStar is checking to make sure you really want to quit. If you enter N, the quit command is aborted and control returns to the edit line.

STEP 2

TYPE **Y**

The CalcStar window will disappear from the screen and the system prompt will appear in the upper left-hand corner of the screen.

7 BALANCING YOUR CHECKBOOK—PART III

7.0 INTRODUCTION

This chapter continues with the BALANCING YOUR CHECKBOOK application. If you are continuing without previously saving the file, go to Section 7.2, otherwise begin here.

TYPE **CS**

PRESS **RETURN**

7.1 LOADING A FILE

All files are assigned names when they are saved onto a disk. To get the file from the disk onto your screen, the file must be loaded into the computer's memory.

STEP 1

TYPE **;L**

The prompt will read:

File name: (make sure file is saved)

STEP 2

TYPE **CHEKBOOK**

PRESS **RETURN**

If you saved your file using a password, enter your password now.

If you entered your password correctly or did not use a password, the prompt will read:

Load position : A1

STEP 3

PRESS **RETURN**

The CHEKBOOK worksheet will appear on your screen.

7.2 PRACTICE

It's time to pay the rest of your bills. Enter the following in the same manner you previously used. You used checks 105-108 to make the following payments.

On August 1, you went to Dr. Bones and had a set of X rays made because you were sure you had broken your arm when you fell down the stairs while chasing your neighbor's cat. Dr. Bones charged you $65.00.

Also on August 1, the rent was due. The $470.00 is payable to your landlord, Gary L. Barton.

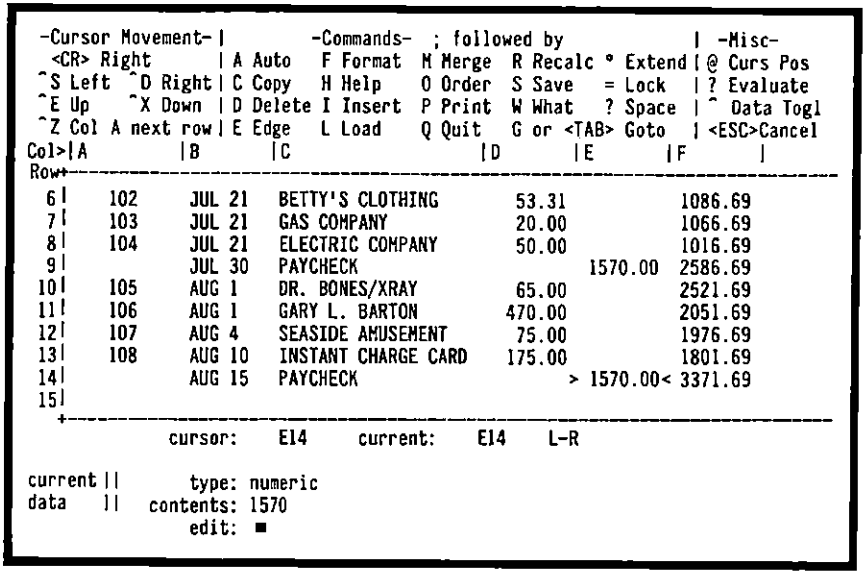
On August 4, after you discovered you had not broken your arm, you went down to Seaside Amusement to celebrate and spent $75 playing video games. Luckily, checks were accepted.

An August 10, the bill from Instant Debt Charge Card arrived. It's difficult to believe that two people actually consumed $75 worth of food and beverages. The other $100 was for automobile accessories.

It's August 15. PAYDAY!! Your paycheck is for $1,570.

Now, balance your checkbook by copying the formula in cell F9 to cells F10 through F14.

After you have entered the above information, compare your screen to the illustration.


-Cursor Movement-
<CR> Right
^S Left ^D Right
^E Up ^X Down
^Z Col A next row
-Commands- ; followed by
A Auto F Format M Merge R Recalc ° Extend
C Copy H Help O Order S Save = Lock
D Delete I Insert P Print W What ? Space
E Edge L Load Q Quit G or <TAB> Goto
-Misc-
@ Curs Pos
? Evaluate
^ Data Togl
<ESC>Cancel
Col> A B C D E F
Row
6 102 JUL 21 BETTY'S CLOTHING 53.31 1086.69
7 103 JUL 21 GAS COMPANY 20.00 1066.69
8 104 JUL 21 ELECTRIC COMPANY 50.00 1016.69
9 JUL 30 PAYCHECK 1570.00 2586.69
10 105 AUG 1 DR. BONES/XRAY 65.00 2521.69
11 106 AUG 1 GARY L. BARTON 470.00 2051.69
12 107 AUG 4 SEASIDE AMUSEMENT 75.00 1976.69
13 108 AUG 10 INSTANT CHARGE CARD 175.00 1801.69
14 AUG 15 PAYCHECK > 1570.00< 3371.69
15
cursor: E14 current: E14 L-R
current data
type: numeric
contents: 1570
edit: ■

7.3 EXTENDING THE CalcStar WINDOW

Now that you have entered all of those checks and deposits, some of your entries are off the screen. You can alleviate this problem by using the Extended Screen Command (;*). This command extends the CalcStar window from 10 to 15 rows by removing the top portion of the screen that contains the directory of commands, cursor movements, and functions. Move the cursor to cell A1.

TYPE ;*

The screen will extend and you will be able to see all of your entries. To return the screen to 10 rows, you would retype ;*.

7.4 CORRECTING ENTRY ERRORS

As you were going over your statement, you noticed that you incorrectly entered the amount of the check you wrote to Betty's Clothing. Instead of it being $53.31, as you entered it, it was actually $533.10. This is an error that needs to be corrected quickly.

To correct the error, go to the cell that contains the incorrect information. In this case, cell D6.

TYPE **533.10**

PRESS **RETURN**

The 53.31 is replaced by 533.10.

7.5 THE RECALCULATE COMMAND

Now use the Recalculate Command to recalculate your balances.

STEP 1

TYPE **;R**

When the prompt reads:

STEP 2

Recalculate: A)ll E)ntry

Since you want the whole worksheet recalculated, not just a single entry,

TYPE **A**

Compare your screen to the illustration.

```
Col>|A       |B       |C                          |D       |E       |F       |
Row+-------------------------------------------------------------------------
  1|
  2|  CHECK #     DATE      ISSUE/DEPOSIT          CHECK    DEPOSIT
  3|  -------  ---------  DESCRIPTION            AMOUNT     AMOUNT   BALANCE
  4|                                                                  1250.00
  5|    101     JUL 20    GROCERIES-TO-GO          110.00              1140.00
  6|    102     JUL 21    BETTY'S CLOTHING       > 533.10<             606.90
  7|    103     JUL 21    GAS COMPANY              20.00               586.90
  8|    104     JUL 21    ELECTRIC COMPANY         50.00               536.90
  9|               JUL 30  PAYCHECK                          1570.00  2106.90
 10|    105     AUG 1     DR. BONES/XRAY           65.00              2041.90
 11|    106     AUG 1     GARY L. BARTON          470.00              1571.90
 12|    107     AUG 4     SEASIDE AMUSEMENT        75.00              1496.90
 13|    108     AUG 10    INSTANT CHARGE CARD     175.00              1321.90
 14|               AUG 15  PAYCHECK                          1570.00  2891.90
 15|
   +-------------------------------------------------------------------------
              cursor:   D6      current:   D6     L-R

current ||      type: numeric
data    ||  contents: 533.10
              edit: ■
```

7.6 SAVING A FILE

Now it's time to save all of your work.

STEP 1

TYPE **;S**

If the file has been saved previously, the prompt will read:

File name : CHEKBOOK

PRESS **RETURN**

The next prompt will read:

File exists. Destroy old contents (Y,N)?

TYPE **Y**

If the file was not previously saved, you should:

STEP 2

TYPE **CHEKBOOK**

PRESS **RETURN**

The prompt will read:

Password (<CR>=none)

OPTIONAL

A password can contain no more than eight characters. If you want to protect your file with a password,

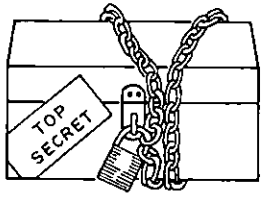
TYPE **the password**

PRESS **RETURN**

If a password is entered, the prompt will read:

Again :

TYPE **the password again**



If a different word is entered, the Save Command is aborted and you are returned to the edit line. When you enter your correct password, it will not be shown on the screen.

If you re-enter the same password or if you did not choose to enter a password the prompt will read:

P)artial or A)ll

STEP 4

You will save all of this worksheet file.

TYPE **A**

Once you type A, your worksheet file will be saved on the logged disk drive.

7.7 THE PRINT COMMAND

Now it's time to print your checkbook register. Make sure your printer is connected and turned on. You will be using the Print Command.

TYPE **;P**

STEP 1

The prompt will read:

To which file? PRINTER

STEP 2

Since you want to print a copy of the worksheet on paper,

PRESS **RETURN**

STEP 3

The prompt will read:

top left corner: A1

This is the first cell where data is entered. If you wanted only a portion of the worksheet printed, you

would enter the coordinates of the position where the printing was to begin. Since you want to print the entire worksheet file,

PRESS **RETURN**

STEP 4

The prompt will read:

bottom right corner: F14

This is the last cell that contains data. Since you want the worksheet printed out to the end,

PRESS **RETURN**

The prompt will then read:

STEP 5

Form length: CONTINUOUS

PRESS **RETURN**

The worksheet will be printed at 66 lines per page.

STEP 6

The prompt will read:

Printer width: 132

If the printer is using 14" paper,

PRESS **RETURN.**

If the printer is using 8½" paper,

TYPE **80**

PRESS **RETURN**

(Some printers can be set to print more characters per sheet, but in the applications in this manual we will use the standard settings.)

STEP 7

Now the prompt will read:

Report printing...
Make sure printer and paper are ready
Title>

TYPE **APPLICATION 1**

PRESS **RETURN**

The prompt will read:

STEP 8

Title>

TYPE **CHECKBOOK REGISTER**

PRESS **RETURN**

The prompt will again read:

STEP 9

Title>

PRESS **RETURN**

The document will begin printing. When the document is done printing, the prompt will read:

.. End Report
Hit Space To Continue

PRESS **SPACE BAR**

7.8 REVIEW OF CHAPTERS 5, 6, AND 7

There, you now have a copy of your completed checkbook register. It really wasn't that difficult, was it? Let's review all you have learned in these chapters.

You now know how to copy and recalculate entries. You can right and left justify text and also center it. You can change a text entry into a numeric entry and vice versa. You can repeat a symbol throughout an entire cell without wearing out a finger. You can insert comments into a file that are seen only by you, not on the printout nor in the CalcStar window. You can add and subtract within the CalcStar worksheet. And you know how to save, load and print worksheet files.

7.9 THE QUIT COMMAND

One more command and you will finish your first complete CalcStar worksheet example. The final command is Quit. Be very careful when you use the Quit

Command. When the Quit Command is used, the worksheet is deleted from memory. If the worksheet was not saved on a disk, it is gone forever, unless you want to reenter it!!

STEP 1

TYPE **;Q**

The prompt will read:

verify Y/N–

CalcStar is checking to make sure you really want to quit. If you enter N, the quit command is aborted and control returns to the edit line.

STEP 2

TYPE **Y**

The CalcStar window will disappear from the screen and the system prompt will appear in the upper left-hand corner of the screen.

8 ESTIMATING A JOB COST—PART I

8.0 INTRODUCTION

Now that you have mastered balancing your checkbook using CalcStar, you are going to use CalcStar to estimate the cost of a job performed by your small janitorial company. This application will be presented in Chapters 8, 9, and 10. You must first determine how much the job is actually going to cost your company, and then how much you will charge the customer for performance of the job.

The first thing you need to do is get CalcStar on your screen.

TYPE **CS**

PRESS **RETURN**

A blank CalcStar window should appear on your screen.

Now you are going to begin setting up your estimating worksheet. Your estimating sheet will be broken up into five different categories. These categories will be titled DIRECT LABOR, MATERIALS AND SUPPLIES, SUBCONTRACT LABOR, TRAVEL/ENTERTAINMENT, and MISCELLANEOUS.

8.1 DETERMINING DIRECT LABOR

The first category, DIRECT LABOR, is divided into EST. MANHOURS, HOURLY RATE, OVERHEAD PERCENTAGE, and TOTAL LABOR. To enter these headings, make sure the cursor is at cell A1.

TYPE **/RCUSTOMER**

PRESS **RETURN**

STEP 1

Now move the cursor to cell A3. you are going to enter the category name, DIRECT LABOR.

TYPE **DIRECT LABOR**

PRESS **RETURN**

Something is wrong. Only the words DIRECT LAB appeared in the cell. That is because the cell is formatted to a width of 10 spaces and DIRECT LABOR needs at least 12 spaces. You can easily solve this problem with the Format Command. Make sure your cursor is at cell A3. Format the column to a width of 21 spaces just in case you need to make a long entry later on. The words DIRECT LABOR should now be displayed in cell A3.

STEP 2

It is time to enter the column headings in the DIRECT LABOR category.

The columns are: EST. MANHOURS, HOURLY RATE, OVERHEAD PERCENTAGE, and TOTAL LABOR. Enter the first part of each heading in cells B2 through E2 and center each. For example, in cell B2 you would enter the following:

TYPE **/CEST.**

PRESS **RETURN**

EST. would be centered in cell B2. Do the same for HOURLY, OVERHEAD and TOTAL.

Once you have entered the first part of the headings, move the cursor to cell B3 and begin centering the second part of each heading in the cell directly underneath the first part of the heading. For example, in cell B3 you would enter MANHOURS.

TYPE **/CMANHOURS**

PRESS **RETURN**

Do the same for RATE, PERCENTAGE, and LABOR.

It would be a good idea to separate the subcategory headings from the category and column headings. This can be done by inserting a line of hyphens in cells A4 through E4.

Move the cursor to cell A4. Using the Repeat Function, fill the cell with -'s. Now, using the Copy Command, copy the -'s in cells B4>E4.

STEP 3

You are now going to enter the DIRECT LABOR subcategories. In this case, the subcategories are: Customer Coordination, Prep. Work, Vacuum Rugs, Wash Windows, Dust Furniture, Wash Walls, and Clean Restrooms.

Move the cursor to cell A5 to begin entering the DIRECT LABOR categories. The first category is Customer Coordination.

TYPE **Customer Coordination**

PRESS **RETURN**

Continue entering the row labels: Prep. Work, Vacuum Rugs, Wash Windows, Dust Furniture, Wash Walls, and Clean Restrooms in cells A6 through A11.

Since you are moving the cursor from the top of column A down, why don't you switch the cursor movement from left-to-right to top-to-bottom. You can do this with the Order Command (;O).

TYPE **;O**

The L-R that appears in the upper right of the bottom portion of your screen, should now read T-B. Now, whenever you use the RETURN key to move the cursor, the cursor will move straight down one row when RETURN is pressed. To change the cursor movement back to L-R, re-enter the Order Command.

Continue entering the above-named row labels in Column A.

Oh no. You forgot to include Cleaning Floors in this section of your job estimating worksheet. There's no need to worry, by using the Insert Command (;I), you can solve the problem.

Move the cursor to cell A7.

TYPE **;I**

The prompt will read:

Insert: R)ow C)olumn

TYPE **R**

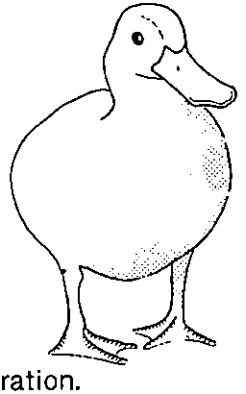
since you need to insert a row. A row will be inserted at the cursor location and the row that was formerly at that location will be moved down one row.

Now enter Clean Floors in cell A7.

Now return the cursor to cell B1. You are going to estimate the cost of cleaning the offices of the AOK Duck Waddle Company.

TYPE **/RAOK DUCK**

PRESS **RETURN**

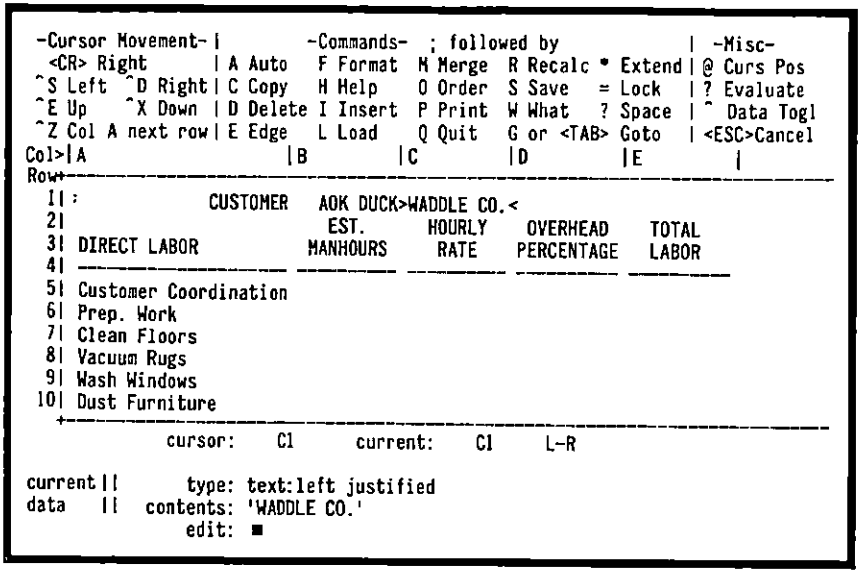


Move the cursor to cell C1.

TYPE **WADDLE CO.**

PRESS **RETURN**

Compare your screen to the illustration.


-Cursor Movement-
<CR> Right
^S Left ^D Right
^E Up ^X Down
^Z Col A next row
-Commands- ; followed by
A Auto F Format M Merge R Recalc * Extend
C Copy H Help O Order S Save = Lock
D Delete I Insert P Print W What ? Space
E Edge L Load Q Quit G or <TAB> Goto
-Misc-
@ Curs Pos
? Evaluate
^ Data Togl
<ESC>Cancel
Col>|A |B |C |D |E |
Row+
1| : CUSTOMER AOK DUCK>WADDLE CO.<
2|
3| DIRECT LABOR EST. MANHOURS HOURLY RATE OVERHEAD PERCENTAGE TOTAL LABOR
4|
5| Customer Coordination
6| Prep. Work
7| Clean Floors
8| Vacuum Rugs
9| Wash Windows
10| Dust Furniture
cursor: C1 current: C1 L-R
current data
type: text:left justified
contents: 'WADDLE CO.'
edit:

8.2 DIRECT LABOR COSTS

Move the cursor to cell A5, Customer Coordination. The first column is Estimated Manhours. The AOK Duck Waddle Company Headquarters is a fifteen-story building.

There will be a lot of instructions for yourself and your workers before you can begin cleaning the offices in the building. You estimate roughly 16 hours, two days, of discussions with Mr. Waddle's janitorial staff will be required before the actual work begins.

Move the cursor to cell B5.

TYPE **16**

PRESS **RETURN**

Since you and your foreman are going to be the people attending these instructional meetings, you will need to charge Mr. Waddle for your time and your foreman's time. You average about $22 per hour and your foreman receives $17 per hour. So you will need to charge Mr. Waddle $39 per hour. Move the cursor to cell C5.

TYPE **39**

PRESS **RETURN**

Move the cursor to cell D5. The OVERHEAD PERCENTAGE is 175.

TYPE **175**

PRESS **RETURN**

The final column is TOTAL LABOR. This column will contain the total Direct Labor cost for Customer Coordination. To determine this cost you first need to determine the overhead charge and then add it to the labor cost.

8.3 THE @ FUNCTION

You will be using the @ Function. The @ Function allows you to copy information directly from one cell to another cell.

To determine the overhead rate, multiply the Estimated Manhours by the Hourly Rate and then take 175% of the total. Add this value to the Estimated Manhours multiplied by the Hourly Rate. In this case, the equation would be 175%(39*16)+(39*16). There is another way to enter this formula into cell E5 other than by keying in the equation character by character. This is where the @ Function comes in handy.

With the cursor at E5,

TYPE +

Move the cursor to the cell that contains 175, which is cell D5.

TYPE @

+D5 will appear on the edit line.

TYPE %(

Move the cursor to the cell that contains the Hourly Rate, cell C5.

TYPE @*

Now the edit line reads +D5%(C5*

Move the cursor to cell B5.

TYPE @)+(@*

The edit line now reads:

+D5%(C5*B5)+(B5*

Move the cursor to cell C5, using either the TAB Command or ^D. [CAUTION. DO NOT PRESS THE RETURN KEY. PRESSING THE RETURN KEY TERMINATES THE @ FUNCTION.]

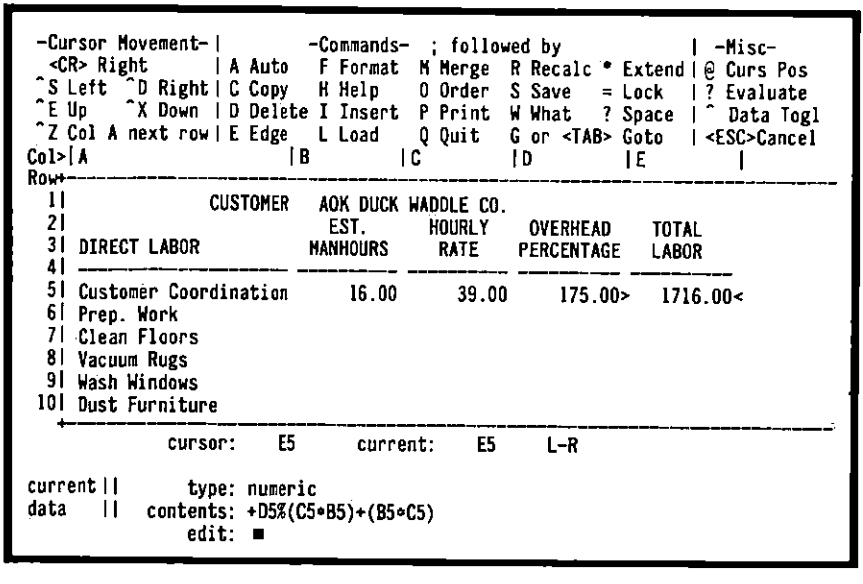
TYPE @)

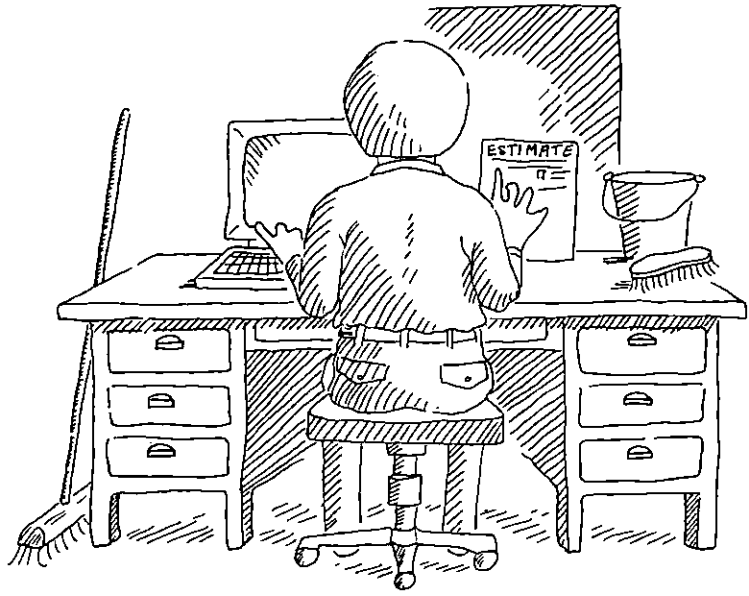
The edit line should look like this:

+D5%(C5*B5)+(B5*C5)

PRESS **RETURN**

The value 1716.00 should appear in cell E5. It will cost you $1,716.00 to coordinate your services with the AOK Duck Waddle Company. Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>|A |B |C |D |E |
Row+
1| CUSTOMER AOK DUCK WADDLE CO.
2|
3| DIRECT LABOR EST. MANHOURS HOURLY RATE OVERHEAD PERCENTAGE TOTAL LABOR
4|
5| Customer Coordination 16.00 39.00 175.00> 1716.00<
6| Prep. Work
7| Clean Floors
8| Vacuum Rugs
9| Wash Windows
10| Dust Furniture
cursor: E5 current: E5 L-R
current || type: numeric
data || contents: +D5%(C5*B5)+(B5*C5)
edit: ■



8.4 MORE DIRECT LABOR COSTS

The next category is Prep. Work. It will take your people about 24 working hours to complete the preparatory work before the actual janitorial work can begin. It only costs you $5 per hour for the Prep. Work.

Move the cursor to cell B6.

TYPE **24**

PRESS **RETURN**

STEP 1

Move the cursor to cell C6.

TYPE **5**

PRESS **RETURN**

The OVERHEAD PERCENTAGE is the same throughout the DIRECT LABOR category, so copy 175 in cells D6 through D12.

Since 175 is a percentage, a decimal precision of two is not needed. To change the decimal precision of a

column of values, use the Format Command to change the decimal precision to 0.

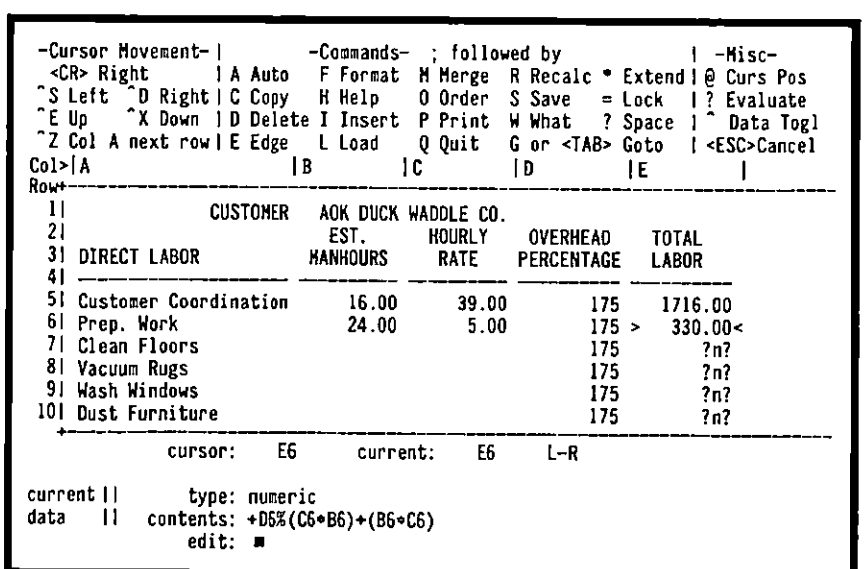
8.5 COPYING RELATIVE EQUATIONS

Now go to cell E6. You are going to determine the TOTAL LABOR cost of your Prep. Work. Since the TOTAL LABOR is determined in the same manner throughout the DIRECT LABOR category, the equation in cell E5, TOTAL LABOR for Customer Coordination, can be copied throughout the TOTAL LABOR COLUMN.

Use the Copy Command to copy the equation from E5 to cells E6>E12. Make sure you have CalcStar adjust the equation for relative adjustment.

CalcStar will adjust the equation so it is relative to the cells it is copied into. For example, move the cursor to cell E5. The contents line should read: +D5%(C5*B5)+(B5*C5). Now move the cursor to cell E6. The contents line at E6 should read: +D6%(C6*B6)+(B6*C6). CalcStar adjusted the equation so it was relative at cell E6. The same changes were made to the equation in each cell the equation was entered into.

Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | A | B | C | D | E |
Row+
1 | CUSTOMER AOK DUCK WADDLE CO.
2 |
3 | DIRECT LABOR EST. MANHOURS HOURLY RATE OVERHEAD PERCENTAGE TOTAL LABOR
4 | ---
5 | Customer Coordination 16.00 39.00 175 1716.00
6 | Prep. Work 24.00 5.00 175 > 330.00<
7 | Clean Floors 175 ?n?
8 | Vacuum Rugs 175 ?n?
9 | Wash Windows 175 ?n?
10 | Dust Furniture 175 ?n?
cursor: E6 current: E6 L-R
current data | type: numeric
contents: +D5%(C5*B5)+(B5*C5)
edit: ■

8.6 THE MEANING OF ?n?

You will notice that in cells E7 through E12, the characters ?n? appeared. This means that for some reason or another CalcStar was not able to complete the calculation that was entered into that cell. In this case, the calculations were not completed because there are no values in cells B7 through B12 and C7 through C12. When values are entered into these cells, the equations can be recalculated and the ?n? will be replaced with the solution to the equation.

8.7 DIRECT LABOR COSTS CONTINUED

The next division of DIRECT LABOR is Clean Floors. The AOK Duck Waddle Company has a lot of tile floors: almost fifteen stories worth. It will take your company approximately 40 hours to clean all of the floors at a cost of $15 per hour. Move the cursor to the proper column and enter the EST. MANHOURS and HOURLY RATE for Clean Floors.

STEP 1

Now that you have entered the values into this category, the TOTAL LABOR can be recalculated using the Recalculate Command. Move the cursor to cell E7. Recalculate the entry.

TYPE **;R**

When the prompt reads:

Recalculate: A)ll E)ntry

TYPE **E**

The value 1650.00 will appear in cell E7.

STEP 2

There are five categories left under TOTAL LABOR. Let's see how well you can do on your own.

It will take 36 hours to vacuum all of the rugs in the AOK Duck Waddle Building at a cost of $21 per hour.

The task of washing the windows was subcontracted to Tom's Window Washers. Make sure your enter 0 in the proper cells.

It will cost $8 per hour to dust the company's furniture. The dusting should take 36 hours.

Wall washers cost you $12 per hour. It will take them 54 hours to wash the interior walls of the building.

The final chore is cleaning the restrooms. It's a bargain at $10 per hour, and it will only take 24 hours.

STEP 3

Now recalculate the values in E8 through E12.

TYPE **;R**

When the prompt reads:

Recalculate: A)ll E)ntry

TYPE **A**

Move the cursor to cell A3. You are going to use the Edge Command so you can see your entries. With the cursor at A3,

TYPE **;E**

Compare your screen to the illustration.

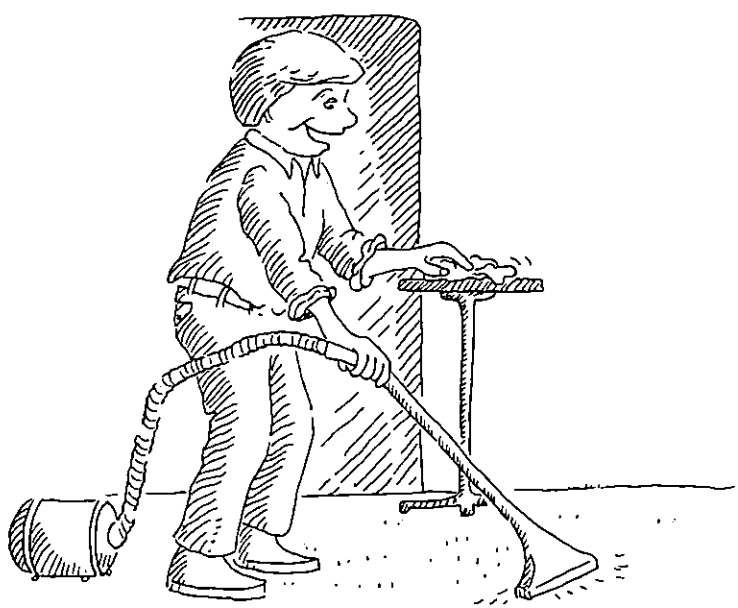
```
 -Cursor Movement- |        -Commands-  ; followed by            | -Misc-
  <CR> Right       | A Auto   F Format  M Merge  R Recalc  * Extend | @ Curs Pos
 ^S Left  ^D Right | C Copy   H Help    O Order  S Save    = Lock   | ? Evaluate
 ^E Up    ^X Down  | D Delete I Insert  P Print  W What    ? Space  | ^ Data Togl
 ^Z Col A next row | E Edge   L Load    Q Quit   G or <TAB> Goto   | <ESC>Cancel
Col>|A                    |B         |C         |D         |E         |
Row+-------------------------------------------------------------------------
  3 | >DIRECT LABOR      <   MANHOURS     RATE    PERCENTAGE   LABOR
  4 | ------------------- ---------- ---------- ---------- ----------
  5 | Customer Coordination      16.00      39.00        175    1716.00
  6 | Prep. Work                 24.00       5.00        175     330.00
  7 | Clean Floors               40.00      15.00        175    1650.00
  8 | Vacuum Rugs                36.00      21.00        175    2079.00
  9 | Wash Windows                0.00       0.00        175       0.00
 10 | Dust Furniture             36.00       8.00        175     792.00
 11 | Wash Walls                 54.00      12.00        175    1782.00
 12 | Clean Restrooms            24.00      10.00        175     660.00
    +-------------------------------------------------------------------------
              cursor:    A3      current:    A3     L-R

current ||       type: text:left justified
data    ||   contents: DIRECT LABOR '
               edit: ■
```

The ?n? in cells E8 through E12 will be replaced with the values 2079.00, 0.00, 792.00, 1782.00, and 660.00, respectively.

8.8 STOPPING BEFORE A FILE IS COMPLETED

You have now completed the first section of your job cost estimating sheet. If you do not wish to continue entering this example right now, use the Save Command. Save the file under the name of JOBCOST and use the Quit Command to exit the CalcStar program. See section 7.6, Saving a File, and section 7.9, The Quit Command. If you wish to continue with this example without quitting, go to Chapter 9, section 9.2.



9 ESTIMATING A JOB COST—PART II

9.0 INTRODUCTION

In this section you will continue with the example ESTIMATING A JOB COST. Get the CalcStar window onto your screen.

TYPE **CS**

PRESS **RETURN**

9.1 LOADING A FILE

All files are assigned names when they are saved onto a disk. To get the file from the disk onto your screen, the file must be loaded into the computer's memory.

STEP 1

TYPE **;L**

The prompt will read:

File name: (make sure file is saved)

STEP 2

TYPE **JOBCOST**

PRESS **RETURN**

The prompt will read:

Load position: A1

STEP 3

PRESS **RETURN**

The JOBCOST worksheet will appear on your screen.

9.2 ESTIMATING MATERIALS AND SUPPLIES

The second category on your job cost estimating sheet is MATERIALS & SUPPLIES. Move the cursor to cell A15.

TYPE **MATERIALS & SUPPLIES**

PRESS **RETURN**

STEP 1

The column headings under MATERIALS & SUPPLIES are: COST, MATERIAL HANDLING, AND TOTAL MATERIAL. Move the cursor to cell C15, where you will begin entering COST.

TYPE **/CCOST**

PRESS **RETURN**

Move the cursor to cell D14. The next column heading is MATERIAL HANDLING. Since the two words will not fit in one cell, MATERIAL will be centered in the cell above HANDLING.

In cell D14,

TYPE **/CMATERIAL**

PRESS **RETURN**

In cell D15,

TYPE **/CHANDLING**

PRESS **RETURN**

Enter the final heading, TOTAL MATERIAL in cells E14 and E15.

TYPE **/CTOTAL**

PRESS **RETURN**

TYPE **/CMATERIAL**

PRESS **RETURN**

Move the cursor to cell A16 and use the Repeat Function and Copy Command to underline the column headings.

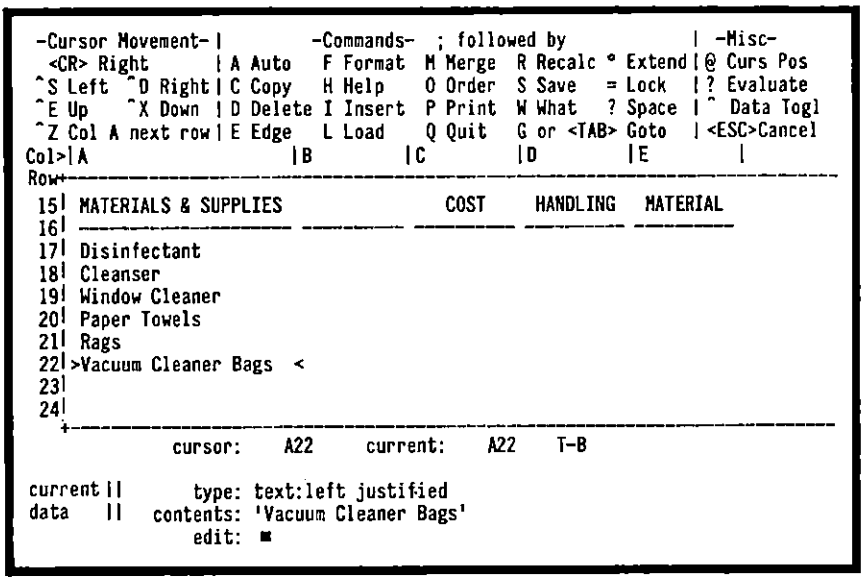
STEP 2

What types of materials and supplies do janitorial services use? They use disinfectant, cleanser, window cleaner, rags, paper towels, mops, brooms, and vacuum cleaners. You can't charge your customers the price of a vacuum cleaner each time you vacuum on a job, but you can charge for such items as vacuum cleaner bags and filters.

So in the category MATERIALS & SUPPLIES, you will enter the disposable items used in the completion of the job. These items are: disinfectant, cleanser, window cleaner, paper towels, rags, and vacuum cleaner bags.

If the direction indicator below the window is L-R, use the Order Command to change the direction to T-B.

Enter these items in cells A17>A22. Compare your screen to the illustration.



9.3 ESTIMATING MATERIAL AND SUPPLY COSTS

You are now finished entering the categories into the MATERIALS & SUPPLIES section of your job cost estimating sheet. It is time to enter the cost of these materials.

Change the direction of the cursor back to L-R by using the Order Command.

Move the cursor to cell C17. You are going to enter the cost of the disinfectant to be used on this job. The disinfectant you will be using costs $50 per drum and you will need three drums.

TYPE **150**

PRESS **RETURN**

Move the cursor to cell D17. The Material Handling is 10%.

TYPE **10**

PRESS **RETURN**

STEP 1

The MATERIAL HANDLING will be the same for each entry in the MATERIAL HANDLING column. Use the Copy Command to enter the MATERIAL HANDLING percentage in the proper cells.

STEP 2

Now you are going to determine the TOTAL MATERIAL cost. Move the cursor to cell E17. The equation is +D17%(C17)+C17.

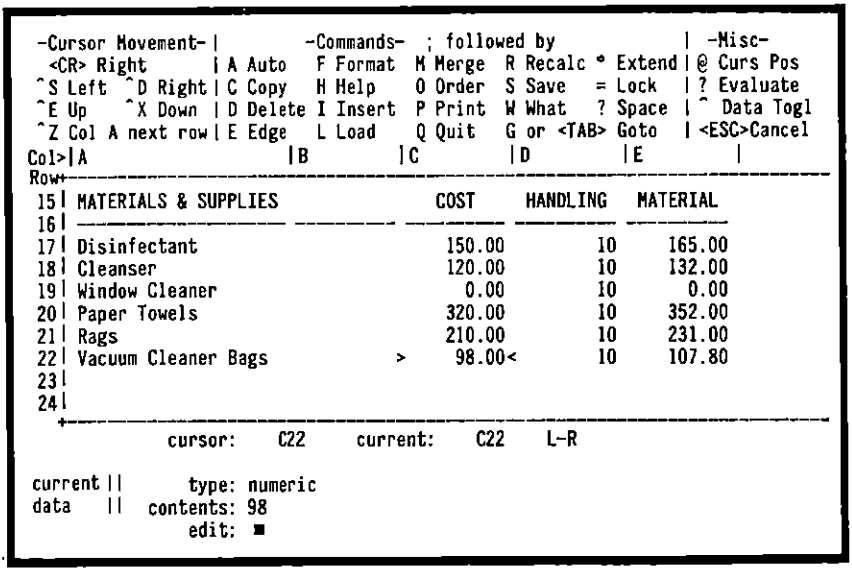
STEP 3

Now copy the equation from cell E17 to cells E18 through E22. Make sure the equation is copied relative to its position.

STEP 4

When the AOK Duck Waddle Building is finally clean, your company will have used $98 worth of vacuum cleaner bags, $120 worth of cleanser, $320 worth of paper towels, and $210 worth of rags.

Enter the above information in the proper cells and recalculate the values in the TOTAL MATERIAL column using the Recalculate Command. Compare your entries to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | A | B | C | D | E |
Row+
15 | MATERIALS & SUPPLIES COST HANDLING MATERIAL
16 |
17 | Disinfectant 150.00 10 165.00
18 | Cleanser 120.00 10 132.00
19 | Window Cleaner 0.00 10 0.00
20 | Paper Towels 320.00 10 352.00
21 | Rags 210.00 10 231.00
22 | Vacuum Cleaner Bags > 98.00< 10 107.80
23 |
24 |
cursor: C22 current: C22 L-R
current | | type: numeric
data | | contents: 98
edit: ■

9.4 ESTIMATING SUBCONTRACT LABOR

The next section on your worksheet is for SUBCONTRACT LABOR. Move the cursor to cell A25.

TYPE **SUBCONTRACT LABOR**

PRESS **RETURN**

STEP 1

The column headings for this section are: ESTIMATED MANHOURS, HOURLY RATE, OVERHEAD PERCENTAGE, and TOTAL LABOR. These are the same headings as in the DIRECT LABOR section. To save yourself time, you can copy the headings from the first section into this section. The first part of the headings are contained in cells B2>E2. Copy these into cells B24>E24. The second part of the headings are in cells B3>E3. Copy these into cells B25>E25.

Place a line under the column headings.

STEP 2

On this job, only one subcontractor is needed. Tom's Window Washers have been hired to clean the windows. Move the cursor to cell A27.

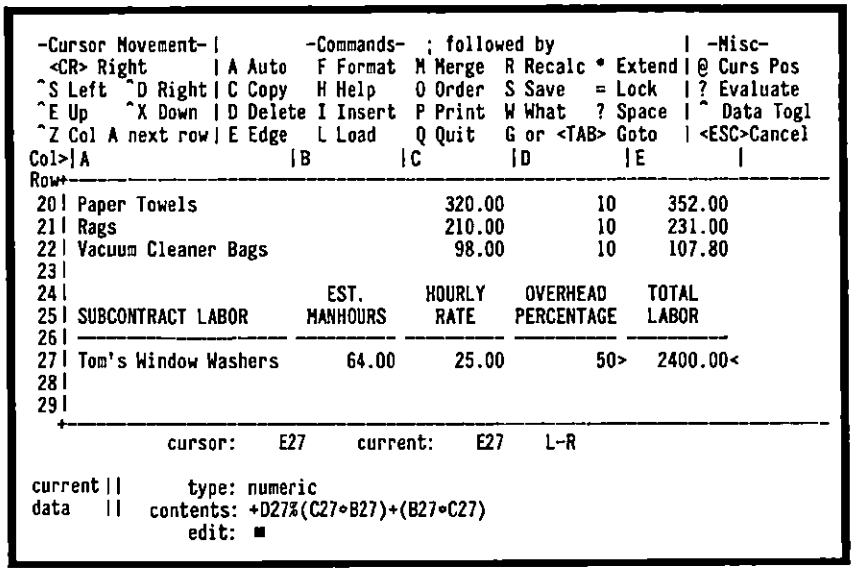
TYPE **Tom's Window Washers**

PRESS **RETURN**

STEP 3

It will take Tom and his window washers 64 hours to wash all of the windows on the AOK Duck Waddle Building at a cost of $25 per hour with an overhead of 50%.

Enter this information in the proper cells. Copy the equation from cell E5 to cell E27 and make sure it is relative to its new position. Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | A | B | C | D | E |
Row+
20 | Paper Towels 320.00 10 352.00
21 | Rags 210.00 10 231.00
22 | Vacuum Cleaner Bags 98.00 10 107.80
23 |
24 | EST. HOURLY OVERHEAD TOTAL
25 | SUBCONTRACT LABOR MANHOURS RATE PERCENTAGE LABOR
26 |
27 | Tom's Window Washers 64.00 25.00 50> 2400.00<
28 |
29 |
cursor: E27 current: E27 L-R
current || type: numeric
data || contents: +D27%(C27*B27)+(B27*C27)
edit:

STEP 4

If you did the above correctly, the value 2400.00 should have appeared in cell E27.

Leave a few blank lines below Tom's Window Washers, just in case you decide to subcontract other parts of the job later on.

9.5 ESTIMATING TRAVEL AND ENTERTAINMENT EXPENSE

TRAVEL/ENTERTAINMENT is the fourth section of your worksheet. Move the cursor to cell A32.

TYPE **TRAVEL/ENTERTAINMENT**

PRESS **RETURN**

STEP 1

Beginning in cell C32, enter the column headings for this section. They are: EXPENSE, T & E HANDLING, and TOTAL T&E EXPENSE. Center T & E above HANDLING and TOTAL T&E above EXPENSE.

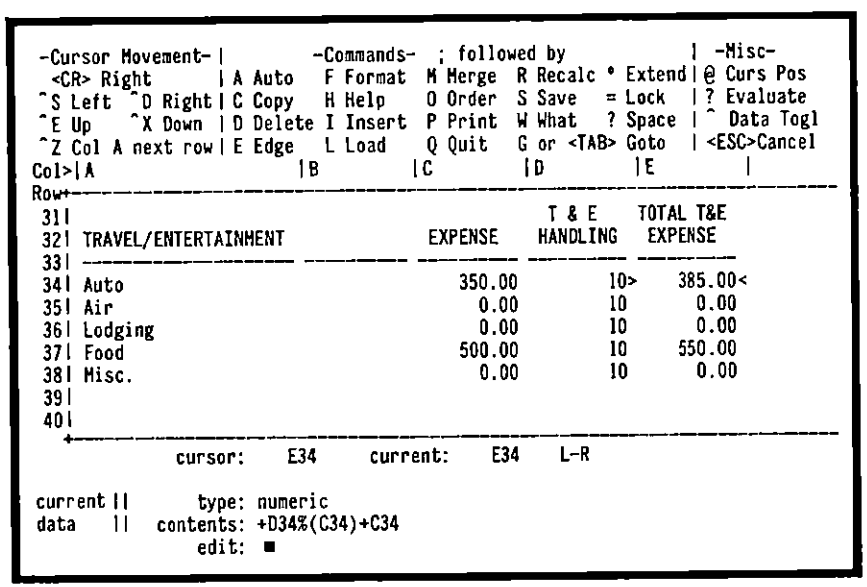
Once you have completed entering the column headings, underline them. Now, move the cursor to cell A34,

change the direction of the cursor from L-R to T-B and enter the row labels. The row labels are: Auto, Air, Lodging, Food, and Misc.

Move the cursor to cell C34 and begin entering the following information:

You did not log any air time, nor were there any lodging or misc. expenses. There were auto and food expenses though. Auto expenses totalled $350 and food expenses totalled $500. The handling costs in the TRAVEL & ENTERTAINMENT section are 10%. Enter these figures into the proper cells and determine the TOTAL EXPENSE for each of them.

Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>|A |B |C |D |E |
Row+
31| T & E TOTAL T&E
32| TRAVEL/ENTERTAINMENT EXPENSE HANDLING EXPENSE
33| ---
34| Auto 350.00 10> 385.00<
35| Air 0.00 10 0.00
36| Lodging 0.00 10 0.00
37| Food 500.00 10 550.00
38| Misc. 0.00 10 0.00
39|
40|
cursor: E34 current: E34 L-R
current || type: numeric
data || contents: +D34%(C34)+C34
edit: ■

9.6 ESTIMATING MISCELLANEOUS COSTS

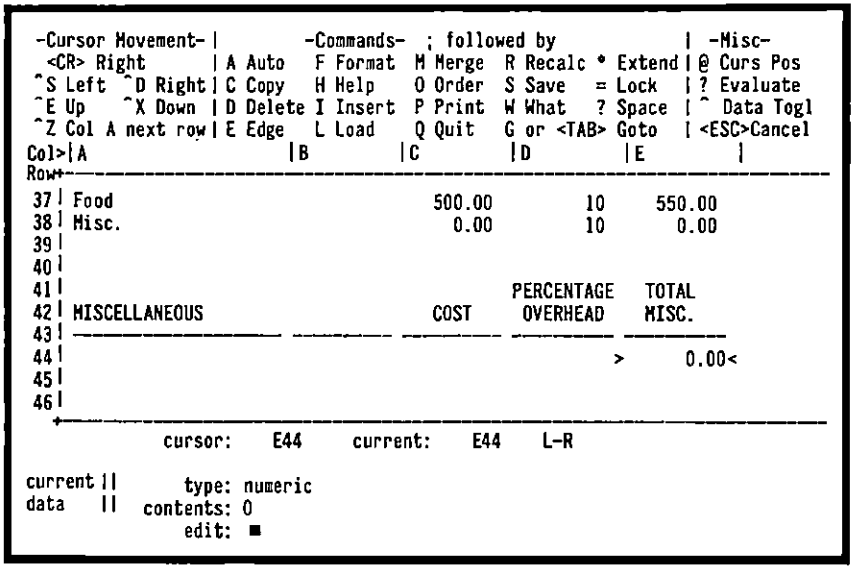
The final cost section of your job estimate worksheet is for Miscellaneous Expenses. Move the cursor to cell A42.

TYPE **MISCELLANEOUS**

PRESS **RETURN**

The categories in this section are: COST, PERCENTAGE OVERHEAD, and TOTAL MISCELLANEOUS.

After you have completed entering the column headings, underline the headings. Move the cursor to cell E44 and enter 0 since there are no Miscellaneous costs on this job. Now compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | A | B | C | D | E |
Row+
37 | Food 500.00 10 550.00
38 | Misc. 0.00 10 0.00
39 |
40 |
41 | PERCENTAGE TOTAL
42 | MISCELLANEOUS COST OVERHEAD MISC.
43 |
44 | > 0.00<
45 |
46 |
cursor: E44 current: E44 L-R
current | | type: numeric
data | | contents: 0
edit: ■

9.7 DETERMINING TOTAL COST OF THE PROJECT

Now that you have entered all of the information in the different cost categories of your job cost estimating sheet, you need to total your costs.

STEP 1

This section will be headed PROJECT TOTALS. PROJECT TOTALS will contain the columns: $ and % OF TOTAL.

Move the cursor to cell A47.

TYPE **PROJECT TOTALS**

PRESS **RETURN**

In cell B47,

TYPE **/C$**

PRESS **RETURN**

In cell C47,

TYPE **/C% OF TOTAL**

PRESS **RETURN**

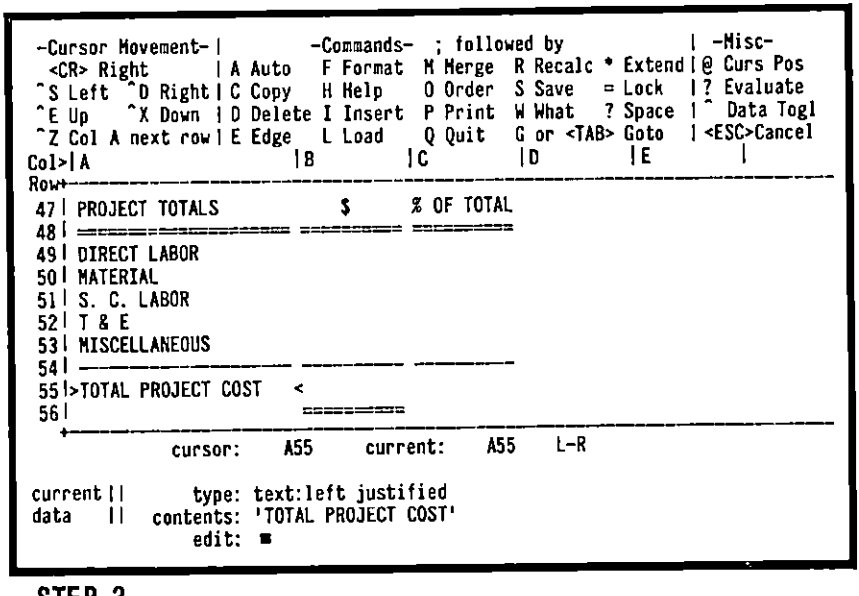
Now underline the column headings with =’s.

STEP 2

You now need to enter the categories under the heading PROJECT TOTALS. These are: DIRECT LABOR, MATERIAL, S.C. LABOR, T & E, and MISCELLANEOUS.

Enter these headings in cells A49 through A53. Place an underline in cells A54-C54, and a double underline in cell B56. Now enter TOTAL PROJECT COST in cell A55.

Compare your screen to the illustration below.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | A | B | C | D | E |
Row
47 | PROJECT TOTALS $ % OF TOTAL
48 | ========== ========= =========
49 | DIRECT LABOR
50 | MATERIAL
51 | S. C. LABOR
52 | T & E
53 | MISCELLANEOUS
54 | ---------- --------- ---------
55 |>TOTAL PROJECT COST <
56 | =========
cursor: A55 current: A55 L-R
current data || type: text:left justified
contents: 'TOTAL PROJECT COST'
edit:

STEP 3

To determine your PROJECT TOTALS you will use the System Function SUM(list/range). In this case you will be summing ranges of cells.

Move the cursor to cell B49. You will enter the TOTAL DIRECT LABOR COST in this cell. To determine the TOTAL DIRECT LABOR COST, you must add together all of the categorized DIRECT LABOR TOTALS in cells E5 through E12.

TYPE +**SUM(E5>E12)**

PRESS **RETURN**

The value 9009.00 will appear in cell B49.

Move the cursor to cell B50. The label MATERIAL is in cell A50. To determine the MATERIAL TOTAL, sum cells E17 through E22.

TYPE +**SUM(E17>E22)**

PRESS **RETURN**

Now enter the rest of the project totals and determine the TOTAL PROJECT COST. Copy the Subcontract Labor total from cell E27. Sum the T & E TOTAL from cells E34>E38. Copy the MISCELLANEOUS TOTAL from cell E44. Compare your screen to the illustration.

```
 -Cursor Movement- |        -Commands-  ; followed by           | -Misc-
  <CR> Right       | A Auto   F Format  M Merge  R Recalc * Extend | @ Curs Pos
 ^S Left  ^D Right | C Copy   H Help    O Order  S Save   = Lock   | ? Evaluate
 ^E Up    ^X Down  | D Delete I Insert  P Print  W What   ? Space  | ^ Data Togl
 ^Z Col A next row | E Edge   L Load    Q Quit   G or <TAB> Goto  | <ESC>Cancel
Col>|A                  |B          |C          |D          |E          |
Row+-------------------------------------------------------------------------
 47| PROJECT TOTALS           $      % OF TOTAL
 48| ================ ========= ========
 49| DIRECT LABOR            9009.00
 50| MATERIAL                 987.80
 51| S. C. LABOR             2400.00
 52| T & E                    935.00
 53| MISCELLANEOUS              0.00
 54| ---------------- --------- --------
 55| TOTAL PROJECT COST   > 13331.80<
 56|                      =========
   +-------------------------------------------------------------------------
            cursor:    B55     current:    B55    L-R

current ||      type: numeric
data    ||  contents: +SUM(B49>B53)
              edit: ■
```

STEP 4

There is still one more column in the PROJECT TOTAL section labeled % OF TOTAL. To determine the Per-

centage of the Total of each category you need to divide the TOTAL PROJECT COST by the TOTAL of each category.

Move the cursor to cell C49.

TYPE **(B49/B55!)*100**

PRESS **RETURN**

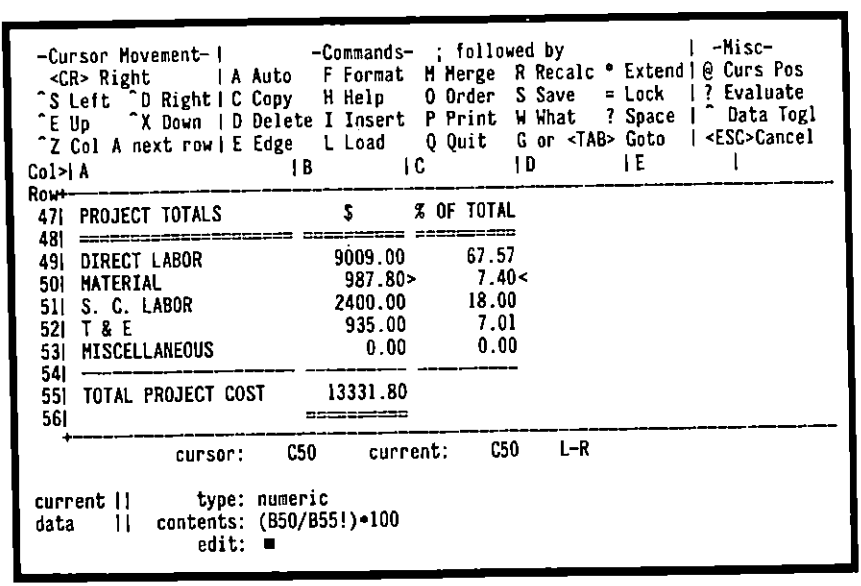
The value 67.57 will appear in cell C49. This means that DIRECT LABOR costs are 67% of your PROJECT COST.

You will notice there is a ! following B55 in the above equation. The ! tells CalcStar not to adjust this cell when using the Copy Command in relative situations. For example, copy the equation from cell C49 to cells C50 through C53.

Move the cursor to cell C50, the contents line reads:

(B50/B55!)*100

CalcStar adjusted the first value with respect to the cell but not the B55!. CalcStar will not adjust information followed by a !. Compare your screen to the illustration.


-Cursor Movement-
<CR> Right
^S Left ^D Right
^E Up ^X Down
^Z Col A next row
-Commands- ; followed by
A Auto F Format M Merge R Recalc * Extend
C Copy H Help O Order S Save = Lock
D Delete I Insert P Print W What ? Space
E Edge L Load Q Quit G or <TAB> Goto
-Misc-
@ Curs Pos
? Evaluate
^ Data Togl
<ESC>Cancel
Col> A B C D E
Row
47 PROJECT TOTALS $ % OF TOTAL
48
49 DIRECT LABOR 9009.00 67.57
50 MATERIAL 987.80> 7.40<
51 S. C. LABOR 2400.00 18.00
52 T & E 935.00 7.01
53 MISCELLANEOUS 0.00 0.00
54
55 TOTAL PROJECT COST 13331.80
56
cursor: C50 current: C50 L-R
current data
type: numeric
contents: (B50/B55!)*100
edit:

9.8 USING THE /P FUNCTION

You have determined how much it will cost your company to clean the AOK Duck Waddle Building, but you still need to determine what you are going to charge the company for your services. Since this is different than determining the TOTAL PROJECT COST, you will print the information on a different page.

In the first completely blank line following the TOTAL PROJECT COST you will enter the Page Function. Move the cursor to cell A57.

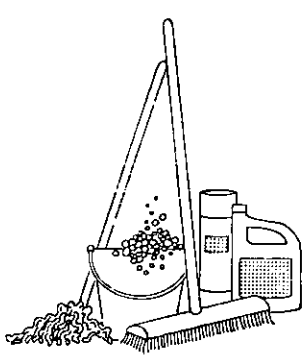
TYPE **/P**

PRESS **RETURN**

When CalcStar comes across this function while printing, the printer will force a paper feed and the information following the /P will continue printing on the next page.

9.9 CHAPTER REVIEW

You have now completed 2 of the 3 parts of the Job Cost Estimating example. If you wish to quit for a while, use the Save Command and the Quit Command. When you want to restart this example, begin at section 10.0. If you wish to continue this example without quitting, turn to Chapter 10, section 10.2.



10 ESTIMATING A JOB COST—PART III

10.0 INTRODUCTION

This is the final part of the Job Cost Estimating example. Get the CalcStar window on your screen.

TYPE **CS**

PRESS **RETURN**

10.1 LOADING A FILE

All files are assigned names when they are saved onto a disk. To get the file from the disk onto your screen, the file must be loaded into the computer's memory.

STEP 1

TYPE **;L**

The prompt will read:

File name: (make sure file is saved)

STEP 2

TYPE **JOBCOST**

PRESS **RETURN**

The prompt will read:

Load position : A1

STEP 3

PRESS **RETURN**

The JOBCOST worksheet will appear on your screen.

10.2 DETERMINING MARKUP

STEP 1

Move the cursor to cell A58.

TYPE **/RUSING MARKUP TO**

PRESS **RETURN**

STEP 2

Move the cursor to cell B58.

TYPE **DETERMINE**

PRESS **RETURN**

STEP 3

Move the cursor to cell C58.

TYPE **SALE PRICE**

PRESS **RETURN**

STEP 4

Underline the heading with -'s.

10.3 PROJECT COST

The first entry in this category is PROJECT COST. Move the cursor to cell A60.

TYPE **PROJECT COST**

PRESS **RETURN**

Enter the PROJECT COST in cell C60.

TYPE +**B55**

PRESS **RETURN**

STEP 1

Move the cursor to cell A61. The next entry in this category is % MARKUP.

TYPE % **MARKUP**

PRESS **RETURN**

In this case, you want a Markup of 50%. In cell C61,

TYPE **50**

PRESS **RETURN**

Using the Format Command, change the decimal precision for this entry only.

TYPE **;F**

When the prompt reads:

W)idth (10) or P)recision (2) or F)orm mode (clear)

TYPE **P**

When the prompt reads:

Column C Precision (0..12) :

TYPE **E0**

PRESS **RETURN**

By placing an E in front of the desired decimal precision, the precision was changed only in the current cursor location. In this case, cell C61. Now underline the three columns.

STEP 2

Move the cursor to cell A63.

TYPE **SALE PRICE**

PRESS **RETURN**

STEP 3

To determine the SALE PRICE, move the cursor to cell C63.

TYPE **+C61%(C60)+C60**

PRESS **RETURN**

The value 19997.70 should appear in cell C63. Compare your screen to the illustration.

```
-Cursor Movement- |        -Commands-  ; followed by          | -Misc-
  <CR> Right     | A Auto   F Format  M Merge  R Recalc * Extend | @ Curs Pos
 ^S Left  ^D Right | C Copy   H Help    O Order  S Save   = Lock   | ? Evaluate
 ^E Up    ^X Down  | D Delete I Insert  P Print  W What   ? Space  | ^ Data Togl
 ^Z Col A next row | E Edge   L Load    Q Quit   G or <TAB> Goto  | <ESC>Cancel
Col>|A                  |B         |C         |D         |E         |
Row+-------------------------------------------------------------------------
 58|       USING MARKUP TO DETERMINE  SALE PRICE
 59| ------------------- ---------- ----------
 60| PROJECT COST                      13331.80
 61| % MARKUP                             50
 62| ------------------- ---------- ----------
 63| SALE PRICE                     > 19997.70<
 64|
 65|
 66|
 67|
   +-------------------------------------------------------------------------
            cursor:    C63     current:    C63    L-R

current ||      type: numeric
data    ||  contents: +C61%(C60)+C60
              edit: ■
```

10.4 DETERMINING ACTUAL PROFIT

Now you are going to determine your actual profit. Title this category, DETERMINING PROFIT, in cell A66.

STEP 1

TYPE **DETERMINING PROFIT**

PRESS **RETURN**

Move the cursor to cell A67.

TYPE /==

PRESS **RETURN**

Move the cursor to cell A68.

TYPE **SALE PRICE**

PRESS **RETURN**

Move the cursor to cell A69.

TYPE **PROJECT COST**

PRESS **RETURN**

Move the cursor to cell A70.

TYPE /=-

PRESS **RETURN**

Move the cursor to cell A71.

TYPE **PROFIT**

PRESS **RETURN**

STEP 2

Enter +C63 in cell C68. Enter +C60 in cell C69. Underline the column with -'s.

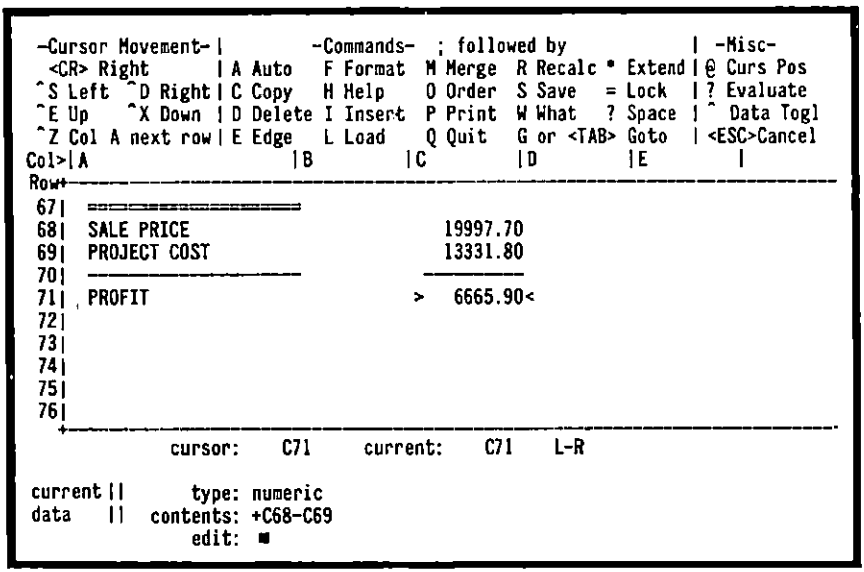
STEP 3

To determine the profit, you will subtract the contents of cell C69 from the contents of cell C68. In cell C71,

TYPE **+C68–C69**

PRESS **RETURN**

You will make a profit of $6,665.90 from cleaning the AOK Duck Waddle Building. Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>|A |B |C |D |E |
Row+
67| ==========
68| SALE PRICE 19997.70
69| PROJECT COST 13331.80
70| ----------
71| PROFIT > 6665.90<
72|
73|
74|
75|
76|
cursor: C71 current: C71 L-R
current data || type: numeric
contents: +C68-C69
edit:

10.5 DETERMINING SALES TOTALS

Just a few more calculations and you will have completed the Job Cost Estimating example.

STEP 1

Move the cursor to cell A77.

TYPE **SALES TOTALS**

PRESS **RETURN**

Move the cursor to cell B77.

TYPE **/C$**

PRESS **RETURN**

Move the cursor to cell C77.

TYPE % **OF TOTAL**

PRESS **RETURN**

Underline the column headings with ='s.

STEP 2

Move the cursor to cell A79. Copy the category labels from A49>A53 to A79>A83.

STEP 3

Now copy the values from B49>B53 to B79>B83. When the prompt asks if the values are to be adjusted relative to their new cell locations, enter N for No adjustment.

STEP 4

You need to put another row in this category. Move the cursor to cell A84.

TYPE **PROFIT**

PRESS **RETURN**

Move the cursor to cell B84.

TYPE +**C71**

PRESS **RETURN**

Underline the columns.

Move the cursor to cell A86.

TYPE **TOTAL SALE PRICE**

PRESS **RETURN**

STEP 5

Move the cursor to cell B86 to sum the column.

TYPE +**SUM(B79>B84)**

PRESS **RETURN**

The TOTAL SALE PRICE is $19,997.70. It will cost the AOK Duck Waddle Company $19,997.70 to have their offices cleaned by your janitorial service.

STEP 6

There is one last column entitled % OF TOTAL. The entries in this column are similar to those in the % OF TOTAL column under PROJECT TOTALS.

Move the cursor to cell C79.

TYPE **(B79/B86!)*100**

PRESS **RETURN**

Copy the equation into cells C80 through C84, using the relative adjustment. Compare your screen to the illustration.

```
-Cursor Movement- |        -Commands-  ; followed by          | -Misc-
  <CR> Right      | A Auto   F Format  M Merge  R Recalc * Extend | @ Curs Pos
^S Left  ^D Right | C Copy   H Help    O Order  S Save   = Lock   | ? Evaluate
^E Up    ^X Down  | D Delete I Insert  P Print  W What   ? Space  | ^ Data Togl
^Z Col A next row | E Edge   L Load    Q Quit   G or <TAB> Goto  | <ESC>Cancel
Col>|A                  |B         |C         |D         |E         |
Row+-------------------------------------------------------------------------
 77| SALES TOTALS             $       % OF TOTAL
 78| ==================== ========= ==========
 79| DIRECT LABOR           9009.00>      45.05<
 80| MATERIAL                987.80        4.93
 81| S. C. LABOR            2400.00       12.00
 82| T & E                   935.00        4.67
 83| MISC.                     0.00        0.00
 84| PROFIT                 6665.90       33.33
 85| -------------------- --------- ----------
 86| TOTAL SALE PRICE       19997.70
   +-------------------------------------------------------------------------
            cursor:    C79     current:    C79    L-R

current         type: numeric
data        contents: (B79/B86!)*100
               edit: ■
```

10.6 SAVING A FILE

Now you are going to save the file.

STEP 1

TYPE **;S**

If the file has been saved previously, the prompt will read:

File name : JOBCOST

PRESS **RETURN**

The next prompt will read:

File exists. Destroy old contents (Y/N)?

TYPE **Y**

If this file was never previously saved, you should:

STEP 2

TYPE **JOBCOST**

PRESS **RETURN**

The prompt will read:

Password (<CR>=none)

OPTIONAL

A password can contain no more than eight characters. If you want to protect your file with a password,

TYPE **the password**

PRESS **RETURN**

If a password is entered, the prompt will read:

Again :

TYPE **the password again**

STEP 3

If you do not wish to protect your file with a password,

PRESS **RETURN**

STEP 4

The prompt will read:

P)artial or A)ll

STEP 5

TYPE **A**

The file will begin saving once the A is typed.

10.7 USING THE QUIT COMMAND

Now you can use the Quit Command to quit the file.

TYPE **;Q**

When the prompt reads:

verify Y/N -

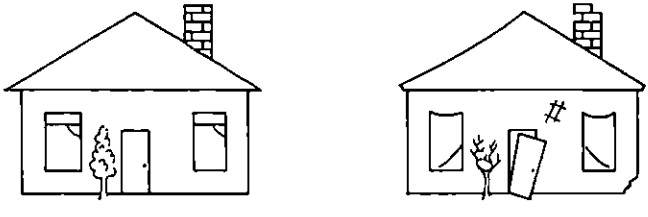
TYPE **Y**

The CalcStar window will disappear from the screen and the system prompt will appear on your screen.

11 DEMONSTRATING ASSET DEPRECIATION

11.0 INTRODUCTION

This example deals with asset depreciation. You will be introduced to the Automatic Form Command and to Conditional Functions. This application will not take as much time to execute as the others did because it is already completed on your CalcStar program disk.



11.1 TURNING ON CalcStar

The file you will be loading into CalcStar is entitled DEMO. Get the CalcStar worksheet on to your screen.

TYPE **CS**

PRESS **RETURN**

11.2 LOADING THE DEMO FILE

All files are assigned names when they are saved onto a disk. To get the file from the disk onto your screen, the file must be loaded into the computer's memory.

STEP 1

TYPE ;L

The prompt will read:

File name: (make sure file is saved)

STEP 2

TYPE **DEMO**

PRESS **RETURN**

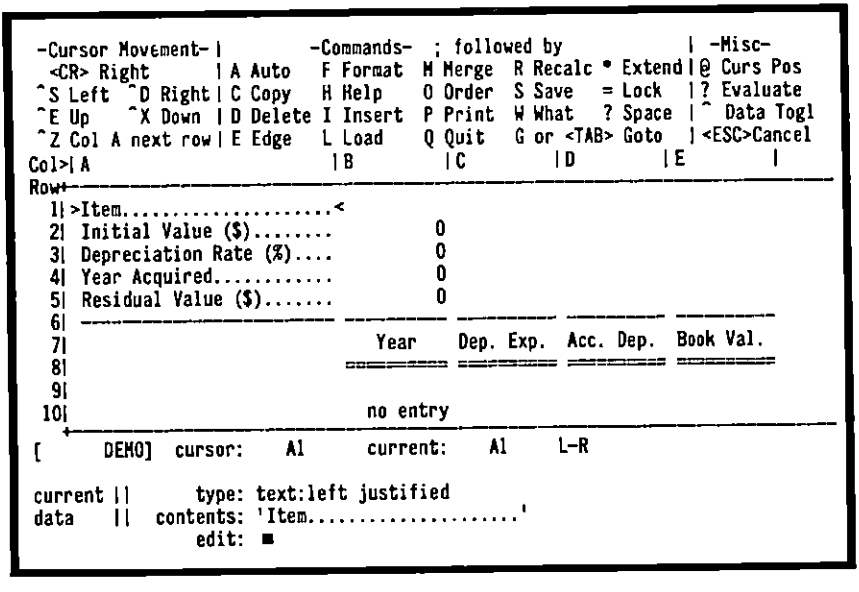
The prompt will read:

Load position : A1

STEP 3

PRESS **RETURN**

The DEMO worksheet will appear on your screen.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>| A |B |C |D |E |
Row+
1|>Item.....<
2| Initial Value ($)..... 0
3| Depreciation Rate (%).... 0
4| Year Acquired..... 0
5| Residual Value ($)..... 0
6|
7| Year Dep. Exp. Acc. Dep. Book Val.
8|
9|
10| no entry
[DEMO] cursor: A1 current: A1 L-R
current || type: text:left justified
data || contents: 'Item.....'
edit: ■

11.3 THE AUTOMATIC FORM COMMAND

The Automatic Form Command is used in conjunction with the Format Command. By using the Format Command, the cursor's course can be preset. The Automatic Form Command is then used to start the cursor along the preset course. The cursor will stop at each pre-specified cell, allowing you to enter new information into the cell. When the cursor's course is complete, the values on the worksheet will be automatically recalculated using the new entries.

STEP 1

The Format Command has already been used to preset the cursor course for the DEMO worksheet, so you only need to use the Automatic Form Command to get the cursor started.

TYPE **;A**

The cursor will go to cell B1.

You will place the type of item you are depreciating in this cell. In this case you are depreciating a 4-Wheel-Drive Truck. Enter 4WD TRUCK into cell B1 as a text entry using the Text Numeric Data Toggle.

TYPE **4WD TRUCK^**

PRESS **RETURN**

STEP 2

The cursor has now moved to the next preset cell. That cell is B2. Enter the initial value of the truck. It is worth $14,500.

TYPE **14500**

PRESS **RETURN**

STEP 3

The cursor is now at cell B3. The depreciation rate of your new truck is 25%.

TYPE **25**

PRESS **RETURN**

STEP 4

The cursor is now at cell B4. The truck was purchased in October of 1982.

TYPE **1982**

PRESS **RETURN**

STEP 5

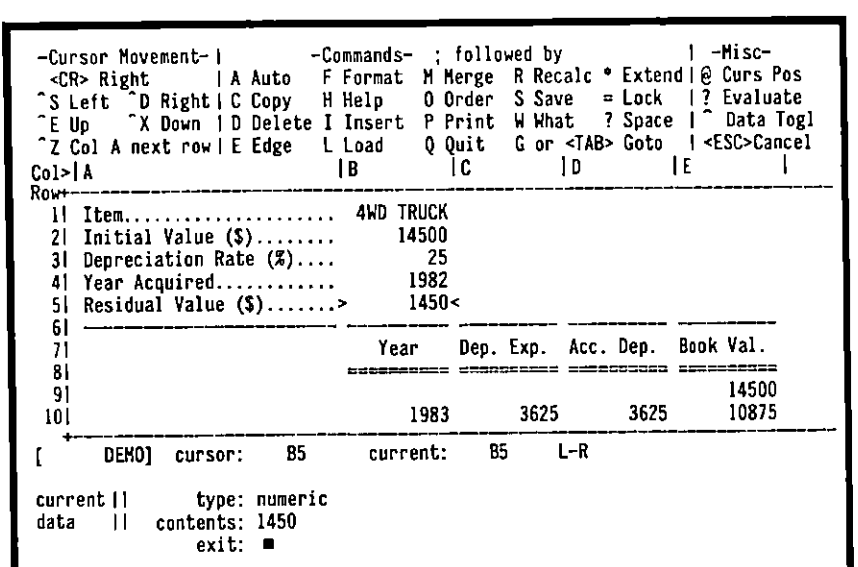
The cursor is now at cell B5. Enter the residual value of the truck, which is $1,450.00.

TYPE **1450 .**

PRESS **RETURN**

STEP 6

CalcStar will now automatically recalculate the values in your worksheet and the depreciation for your new 4-Wheel-Drive Truck will be figured and displayed on your screen.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>|A |B |C |D |E
Row+
1| Item..... 4WD TRUCK
2| Initial Value ($)..... 14500
3| Depreciation Rate (%).... 25
4| Year Acquired..... 1982
5| Residual Value ($).....> 1450<
6|
7| Year Dep. Exp. Acc. Dep. Book Val.
8|
9| 14500
10| 1983 3625 3625 10875
[DEMO] cursor: B5 current: B5 L-R
current | | type: numeric
data | | contents: 1450
exit: ■

That was pretty tricky, wasn't it? You are probably wondering how a blank worksheet suddenly filled with values. Well, to begin with, the worksheet was not really blank, it just appeared that way.

To get a better understanding of what was actually on the seemingly empty worksheet, move the cursor to cell B10. On the contents line appears the equation:

+B2=0:"no entry":+B4+1

What the equation means is:

If the value contained in cell B2 equals 0, then enter the text 'no entry' into cell B10, but if the value contained in cell B2 does not equal zero, add 1 to the value contained in cell B4 and display it at cell B10.

The equation contained in cell B10 illustrates an IF, THEN, ELSE Conditional Function.

So, move the cursor to cell C11. The contents line reads:

+B2=0:" ":+B3%E10

What the equation means is:

If the value contained in cell B2 equals 0, then leave cell C11 blank, but if cell B2 does not equal 0, then multiply the value in B3 as a percentage by the value contained in cell E10 and enter the value into cell C11.

Cells B10 through E19 contain conditional functions. When a value greater than 0 is entered into cell B2, 'Initial Value', values will begin appearing in the other cells, because of the use of Conditional Functions after the final cell, B5, in the Automatic Form mode is filled in.

Conditional Functions are really not as complicated as they sound. It gives you a chance to place conditions on your data. For example, in this application, the 'Book Value' will be listed until it is less than the

'Residual Value.' For more information about Conditional Functions, see Chapter 14.

11.5 SAVING AND PRINTING THE WORKSHEET

Use the Save Command to save your worksheet under the name 4WDTRUCK. After you have saved the file, print it to the printer.

11.6 QUITTING CalcStar

Use the Quit Command to exit the CalcStar Program and return to the operating system.

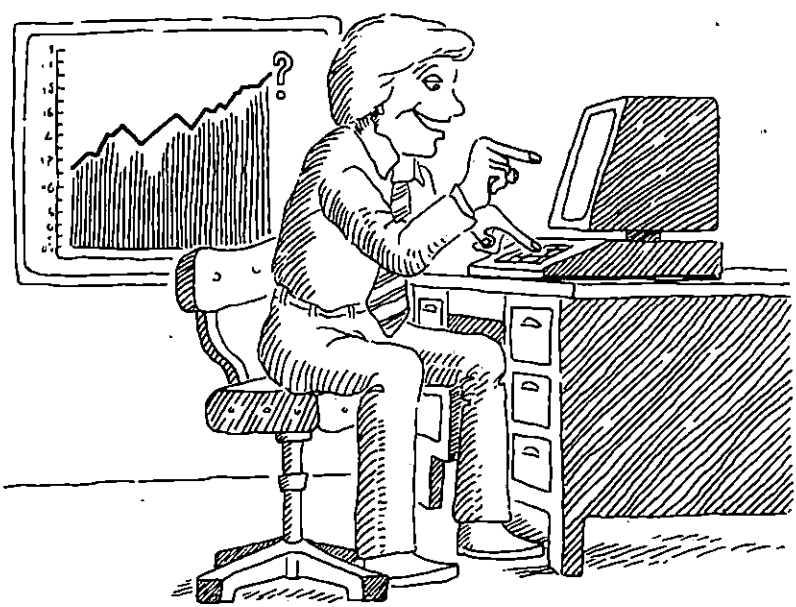
11.7 CHAPTER REVIEW

In this section you learned about the Automatic Form Command and about Conditional Functions. You also learned how to use CalcStar to depreciate your assets over a given period of time.

12 FORECASTING BUSINESS TRENDS

12.0 INTRODUCTION

In this application you will learn how to use the Linear Regression Functions, +REGR, +PROJ, +DEPD and +SLOPE to help you forecast business trends.



12.1 TURNING ON CalcStar

To get CalcStar onto your screen,

TYPE **CS**

PRESS **RETURN**

12.2 SETTING UP YOUR WORKSHEET

Before you can begin forecasting, you need to set up your worksheet.

STEP 1

Beginning in cell B1, enter the abbreviated names of the first six months of the year and right justify the entries.

STEP 2

After you have entered the months, move the cursor to cell B2 and enter a 1, in C2 a 2, and so on through the number six. Format the precision of each column to 0.

STEP 3

Format cell A4 to a width of 15 spaces and enter DISTRICT A. Below DISTRICT A, enter WIDGETS,and then under that entry, enter DOODADS.

STEP 4

In cell A8, enter ADVERTISING $$.

12.3 ENTERING PRODUCT SALES FIGURES

The WIDGET Sales Figures for January through June are: $300, $435, $650, $875, $1,200, and $1,440, respectively. Enter the amounts in cells B5 through G5. Remember, do not enter the $ or the ,.

The DOODAD Sales Figures for January through June are: $100, $92, $81, $64, $55, and $47, respectively. Enter the amounts in cells B6 through G6.

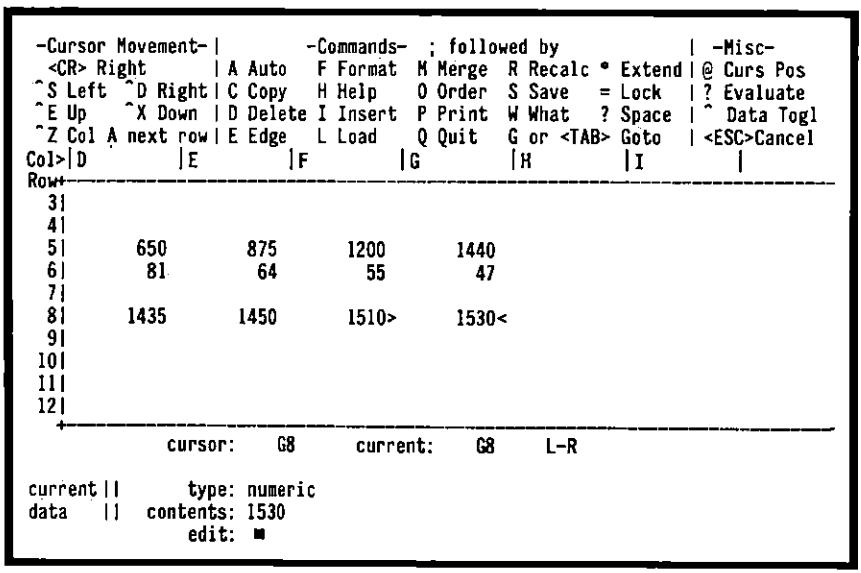
12.4 ENTERING ADVERTISING DOLLARS

The company spent $8,445 on advertising during the first six months of the year. It was broken down as follows: $1,230, $1,300, $1,435, $1,450, $1,510, and $1,530.

Enter the amounts in cells B8 through G8.

12.5 USING CalcStar's FORECASTING CAPABILITIES

You have now completed entering the information necessary to perform the regression functions. Your screen should look like this:


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | D | E | F | G | H | I |
Row+
3|
4|
5| 650 875 1200 1440
6| 81 64 55 47
7|
8| 1435 1450 1510> 1530<
9|
10|
11|
12|
cursor: G8 current: G8 L-R
current | | type: numeric
data | | contents: 1530
edit: ■

The first function you will perform is called the Regression Function. This function must be performed prior to the use of any of the other Linear Functions, because this function computes the linear regression line that is used in the computation of the other linear functions.

12.6 THE REGRESSION FUNCTION

The Regression Function uses two types of variables, independent and dependent. The independent variable

does not rely on any other quantity for its value. The dependent variable relies upon the independent variable for its value.

12.7 USING THE REGRESSION FUNCTION ON WIDGETS

In this application, the number of the month is the independent variable and WIDGET Sales is the dependent variable.

Move the cursor to cell H5.

TYPE +**REGR(B2>G2,B5)**

PRESS **RETURN**

What you have just told CalcStar to do, is to perform the Regression Function using the range of values contained in cells B2>G2 as the independent variable. The dependent variable is the range of values beginning with cell B5. CalcStar knows that although you only entered B5, you mean the range of entries from B5 through G5.

If you are still a little confused, think of it this way. The amount of Sales of WIDGETS is dependent upon time. That is all you have entered.

The number 816.66 should have appeared in cell H5. The 816.66 is the mean or average value of the range of dependent values in the above regression equation. In other words, it is the average of sales of WIDGETS for six months.

12.8 THE PROJECTION FUNCTION

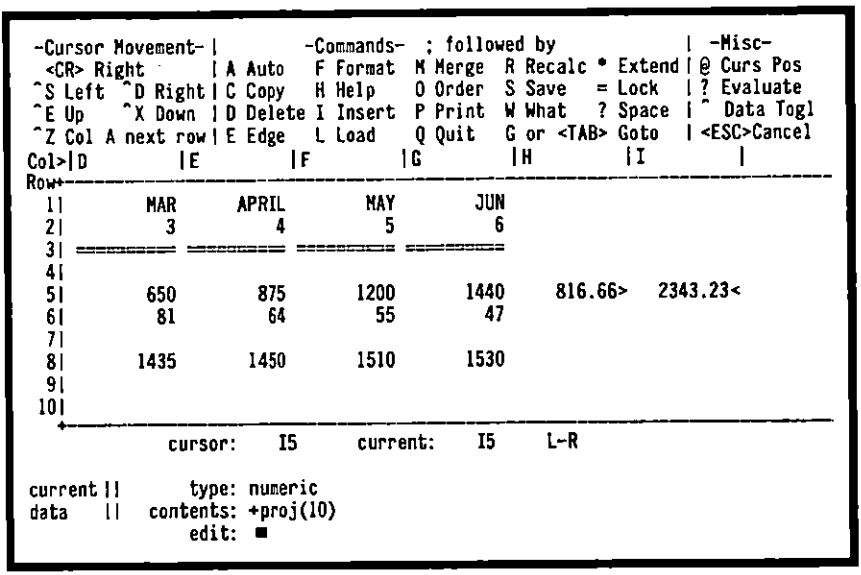
Move the cursor to cell I5. Now you are going to see why these Linear Functions are really useful. You are going to use the Projection Function to determine your projected sales of WIDGETS for the month of October, based on the data of the first six months of the year.

TYPE +**PROJ(10)**

PRESS **RETURN**

The number 10 was entered along with the Projection Function because October is the tenth month. CalcStar will now project sales for the month of October, based on the sales of January through June.

The value 2343.23 will appear in cell I5. Based on the first six months of the year, you can expect to have WIDGET sales of $2,343.23 in October. Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | D | E | F | G | H | I |
Row
1 | MAR APRIL MAY JUN
2 | 3 4 5 6
3 | ========== ========== ========== ==========
4 |
5 | 650 875 1200 1440 816.66> 2343.23<
6 | 81 64 55 47
7 |
8 | 1435 1450 1510 1530
9 |
10 |
cursor: I5 current: I5 L-R
current | | type: numeric
data | | contents: +proj(10)
edit: ■

12.9 USING THE REGRESSION FUNCTION ON DOODADS

This time you are going to determine the regression equation for DOODADS. Move the cursor to cell H6.

TYPE +**REGR(B2>G2,B6)**

PRESS **RETURN**

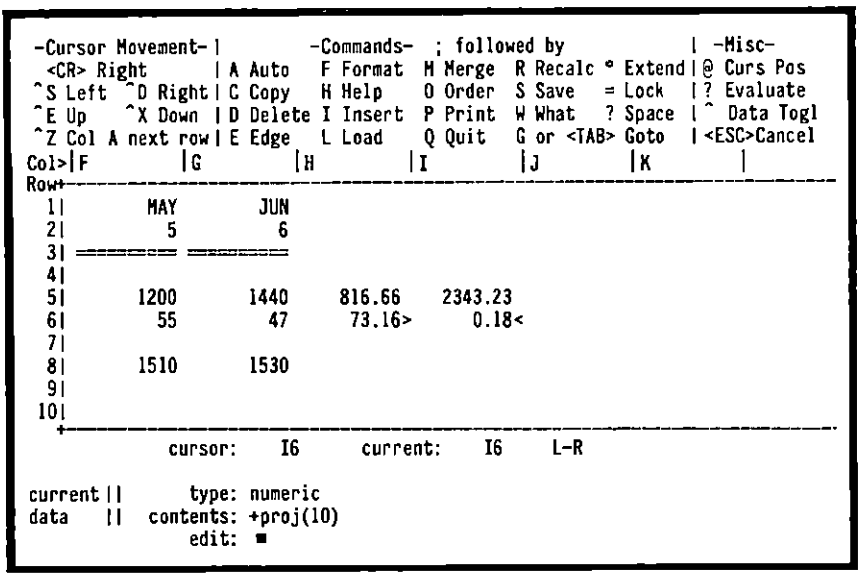
12.10 USING THE PROJECTION FUNCTION

Since you have determined the Regression Function, you can now project sales for the month of October for DOODADS. Move the cursor to cell I6.

TYPE +**PROJ(10)**

PRESS **RETURN**

The value 0.18 will appear in cell I6. DOODADS aren't selling very well. If you project sales for November or December, you will see that projected sales for these months is negative.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | F | G | H | I | J | K |
Row+
1| MAY JUN
2| 5 6
3| ======== ========
4|
5| 1200 1440 816.66 2343.23
6| 55 47 73.16> 0.18<
7|
8| 1510 1530
9|
10|
cursor: I6 current: I6 L-R
current || type: numeric
data || contents: +proj(10)
edit: ■

12.11 SALES AS A FUNCTION OF ADVERTISING

Move the cursor to cell H8. You are now going to determine the effect of advertising on WIDGET Sales.

TYPE **+REGR(B8>G8,B5)**

PRESS **RETURN**

12.12 USING THE DEPENDENT FUNCTION

Move the cursor to cell I8. You are going to determine how much money you need to spend on advertising to result in WIDGET sales of $2,000. You will use the dependent function because you are asking CalcStar for the value of the independent variable given the dependent variable 2000.

TYPE **+DEPD(2000)**

PRESS **RETURN**

You will need to spend $1,750.88 on advertising to reach a sales level of $2,000 for WIDGETS.

12.13 USING THE SLOPE FUNCTION

The Slope Function will give you the slope of the Regression Equation, which tells the rate at which the dependent variable is increasing (+) or decreasing (−) as a function of the independent variable.

Move the cursor to cell J8.

TYPE +**SLOPE()**

PRESS **RETURN**

The answer is 3.46.

Move the cursor to cell J6 and perform the Slope Function and then move the cursor to cell J5 and use the slope function one more time.

CalcStar computed the value 3.46 as the slope of all three functions. You know that can't possibly be correct and it isn't. CalcStar is set-up to use the last regression function entered when performing linear functions. Since the regression function at H8 was the last one entered, CalcStar thinks you are asking for the slope of that regression function. You can alleviate this problem by using the Recalculate Command.

TYPE **;R**

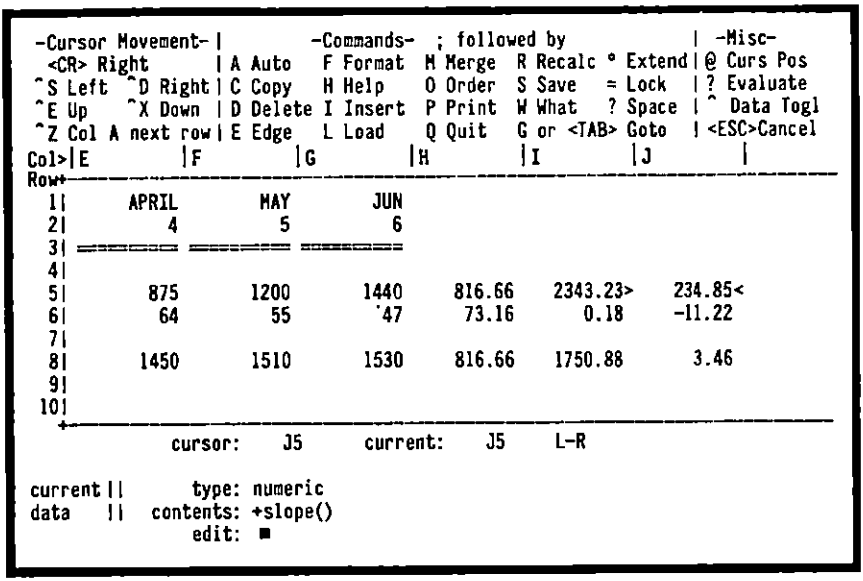
When the prompt reads:

Recalculate: A)ll E)ntry

TYPE **A**

It is a good idea to use the Recalculate Command each time you use a projection, dependent, or slope function.

The proper slopes will appear in their proper cells. Now you can get a rough estimate of the correlation between the values regressed against each other. For example, the second regression function results in a slope of −11.22. This tells you that DOODAD sales are decreasing about 11 units on the average per month. Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc ° Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col> | E | F | G | H | I | J |
Row+
1| APRIL MAY JUN
2| 4 5 6
3| ======== ======== ========
4|
5| 875 1200 1440 816.66 2343.23> 234.85<
6| 64 55 '47 73.16 0.18 -11.22
7|
8| 1450 1510 1530 816.66 1750.88 3.46
9|
10|
+
cursor: J5 current: J5 L-R
current || type: numeric
data || contents: +slope()
edit: ■

12.14 SAVING AND PRINTING YOUR FILE

You have now completed this forecasting application of CalcStar. Save the file under the file name FORECAST and then print the file.

12.15 QUITTING CalcStar

Use the Quit Command and return to the operating system.

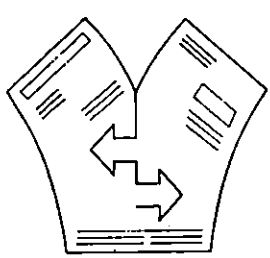
12.16 CHAPTER REVIEW

You are now familiar with the Linear Functions +REGR, +PROJ, +DEPD, and +SLOPE and can use them to forecast business trends.

13 PREPARING AN INCOME STATEMENT

13.0 INTRODUCTION

This application is on your CalcStar disk. You will see how an Income Statement is prepared and you will be introduced to the Merge Command.



13.1 TURNING CalcStar ON

To get CalcStar on your screen.

TYPE **CS**

PRESS **RETURN**

13.2 LOADING THE HELPER FILE

The file you need to load is called HELPER, and is contained on the CalcStar disk. Load HELPER into memory.

TYPE **;L**

When the prompt reads:

File name:

TYPE **HELPER**

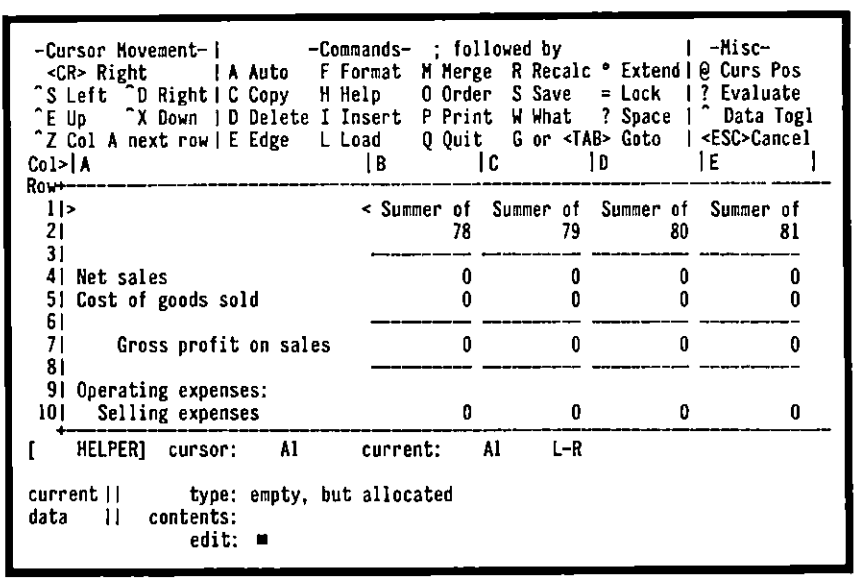
PRESS **RETURN**

When the prompt reads:

Load position > A1

PRESS **RETURN**

Compare your screen to the illustration.


-Cursor Movement- | -Commands- ; followed by | -Misc-
<CR> Right | A Auto F Format M Merge R Recalc * Extend | @ Curs Pos
^S Left ^D Right | C Copy H Help O Order S Save = Lock | ? Evaluate
^E Up ^X Down | D Delete I Insert P Print W What ? Space | ^ Data Togl
^Z Col A next row | E Edge L Load Q Quit G or <TAB> Goto | <ESC>Cancel
Col>|A |B |C |D |E
Row
1|>
2|
3|
4| Net sales
5| Cost of goods sold
6|
7| Gross profit on sales
8|
9| Operating expenses:
10| Selling expenses
< Summer of 78
Summer of 79
Summer of 80
Summer of 81
0
[HELPER] cursor: A1 current: A1 L-R
current || type: empty, but allocated
data || contents:
edit:

13.3 PREPARING BOILERPLATES

As you can see, this file contains only basic headings and lines needed in an Income Statement. To complete the Income Statement, you need to enter information into the blank spaces.

There are two ways to do this. You can enter the information manually into the file as you set up the rows, columns, and headings, or you can set up the basic document form in one file and the information contained in the document in a different file.

In this application, the information to be included in this document has been entered into a file called HELP1. By using this method of entry into a document, you will have a boilerplate of a basic document that does not change or changes very little. This saves you time because you do not have to continually enter headings, lines, and equations. These entries are made only once.

13.4 MERGING FILES

It sounds great, right? But how is it done? CalcStar has the capability to merge files. To merge files, use the Merge Command.

STEP 1

TYPE **;M**

The prompt will read:

STEP 2

File name: (make sure file is saved)

TYPE **HELP1**

PRESS **RETURN**

since you want to merge HELP1 with HELPER.

The prompt will read:

STEP 3

Load position > A1

Before you type anything else, be very careful. CalcStar is asking at what position in the old file do you want the merging file to be positioned.

[CAUTION. THE FILE BEING MERGED WILL OVERRIDE THE FILE ON THE SCREEN IN TERMS OF COLUMN WIDTH, PRECISION, ETC. ALSO, IF BOTH FILES HAVE ENTRIES IN THE SAME CELLS, THE INFORMATION IN THE FILE BEING MERGED WILL OVERRIDE THE INFORMATION IN THE CELL OF THE FILE ON THE SCREEN.]

This is why you need to load HELP1 beginning in cell B1. Since HELPER contains information in cell A1, if HELP1 was loaded at A1, the information in HELPER would be overwritten by HELP1.

STEP 4

TYPE **B1**

PRESS **RETURN**

Your merged files should look like the illustration.

```
 -Cursor Movement- |        -Commands-  ; followed by          | -Misc-
   <CR> Right      | A Auto   F Format  M Merge  R Recalc * Extend | @ Curs Pos
 ^S Left   ^D Right| C Copy   H Help    O Order  S Save   = Lock   | ? Evaluate
 ^E Up     ^X Down | D Delete I Insert  P Print  W What   ? Space  | ^ Data Togl
 ^Z Col A next row | E Edge   L Load    Q Quit   G or <TAB> Goto  | <ESC>Cancel
Col>|A                          |B         |C         |D         |E         |
Row+-------------------------------------------------------------------------
  1|                           > Summer of< Summer of  Summer of  Summer of
  2|                               78         79         80         81
  3|                           ---------- ---------- ---------- ----------
  4| Net sales                      4000       4800       4848       5575
  5| Cost of goods sold             3000       3600       3636       4181
  6|                           ---------- ---------- ---------- ----------
  7|     Gross profit on sales      1000       1200       1212       1394
  8|                           ---------- ---------- ---------- ----------
  9| Operating expenses:
 10|   Selling expenses              400        480        485        558
   +-------------------------------------------------------------------------
[     HELP1]  cursor:    B1      current:    B1     L-R

current ||       type: text:right justified
data    ||   contents: ' Summer of'
               edit: ■
```

13.5 SAVING THE MERGED FILES

Now you can save the merged document. Use the Save Command.

TYPE **;S**

When the prompt reads:

File name :

TYPE **INCOME**

PRESS **RETURN**

13.6 RENAMING MERGED FILES

If you save the merged document under the file name of either of the merged documents, such as HELP1, that file will be deleted. The merged file, with any changes you might have made, will replace the old HELP1 file on the logged disk.

Continue saving the file you just named INCOME, then print the file, and quit CalcStar.

13.7 CHAPTER REVIEW

You have now completed the final application included in this User's Manual. You have been introduced to all of the CalcStar Commands, Text Functions, Cursor Controls, Arithmetic Functions, System Functions, Conditional Functions, and Linear Functions. Use the applications shown in this manual and apply them to your specific needs. If you have any questions about commands or functions, refer to Chapter 14.

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14 COMMANDS/FUNCTIONS

14.1 COMMANDS

;A AUTOMATIC FORM COMMAND

The cursor's course can be preset by first using the ;F FORMAT COMMAND. Once the course has been set, the ;A command can be entered. This will cause the cursor to begin following the outlined course. The cursor will stop at each preset cell. Information can then be re-entered into the cell. This command is very useful when certain entries are subject to frequent changes.

SEE FORMAT COMMAND, ALTERING FORM MODE, FOR MORE INFORMATION.

;C COPY COMMAND

This command allows information to be copied from one cell into another cell, from one cell into a range of cells, and from a range of cells into a range of cells.

TYPE **;C**

The prompt will read:

From coord (>coord):

TYPE the coordinate or range of coordinates that contain the information to be copied.

PRESS **RETURN**

The prompt will read:

To coord (>coord):

TYPE the coordinate or range of coordinates the information is to be copied into.

PRESS **RETURN**

If it is appropriate to the information being copied,

the prompt will read:

R)elative or N)o adjustment?

COPYING INFORMATION WITH NO ADJUSTMENT

If the entries being copied are to stay constant throughout the range of target entries it is being copied into,

TYPE **N**

COPYING INFORMATION THAT IS RELATIVE

If the entries are values or formulas that must be adjusted at each cell to be relevant at that position,

TYPE **R**

EXAMPLE

TYPE **;C**

From coord (>coord): **A6**

To coord (>coord): **B6>D6**

R)elative or N)o adjustment? **R**

The formula at A6 is +SUM(A3>A5)*12

The formula will be copied into B6 as: +SUM(B3>B5)*12

The formula will be copied into C6 as: +SUM(C3>C5)*12

The formula will be copied into D6 as: +SUM(D3>D5)*12

If part of the information to be copied is relative, prior to accessing the ;C command, place a ! after each coordinate in the formula that is not to be adjusted for location, then access the ;C command. Follow the instructions in the section, COPYING INFORMATION THAT IS RELATIVE. CalcStar will not adjust information followed by a !.

EXAMPLE

TYPE **;C**

From coord (>coord): **B7**

PRESS **RETURN**

To coord (>coord): **C7>E7**

PRESS **RETURN**

R)elative or N)o adjustment? **R**

The formula at B7 is +SUM(B2>B6)/SQRT(A4!)

The formula will be copied into C7 as: +SUM(C2>C6) /SQRT(A4!)

The formula will be copied into D7 as: +SUM(D2>D6) /SQRT(A4!)

The formula will be copied into E7 as: +SUM(E2>E6) /SQRT(A4!)

;D DELETE COMMAND

This command is used to delete information already entered into the worksheet.

TYPE **;D**

The prompt will read:

Delete: A)ll R)ow C)olumn E)ntry

DELETING ALL

By entering A, all of the information that has been entered into the memory since the last time the SAVE COMMAND was executed, will be deleted. Verification of the deletion must be made.

The prompt will read:

verify Y/N –

If Y is selected, all of the information in the memory will be deleted.

If N is selected, the deletion will not occur and control will return to the edit line.

DELETING A ROW OR COLUMN

With the cursor defining the row or column to be deleted, press either R or C. The program will not allow a row or column to be deleted if it contains information that is used by another cell to complete its function. If a row or column contains such information, the prompt will read:

ERROR: would delete ref(s) at [the coordinates that contain dependent information]

To delete a row or column that contains this information, the entries listed after the ERROR message must be altered in a way which will make them independent of the row or column that is to be deleted.

If the row or column to be deleted contains no information needed by other cells, the prompt will ask:

verify Y/N –

If Y is selected, the row or column will be deleted.

If N is selected, the command is cancelled and control returns to the edit line.

DELETING AN ENTRY

If an E is entered, the entry at the current cursor location will be deleted. The system does not check to see if any other entries are dependent upon this information nor does it ask for verification of the deletion.

;E EDGE COMMAND

By entering ;E, the current cursor location becomes the upper left-hand corner of the display window. The 9 rows below the cursor, and the cursor row will be shown on the screen, in addition to as many columns as will fit. None of the information in any of the cells is altered by this command.

;F FORMAT COMMAND

This command displays the current column width, decimal precision, and form mode, and allows you to change the settings.

TYPE **;F**

The prompt will read:

P)recision (2) or W)idth (10) or F)orm mode (clear)

(Decimal precision is set at 2 places, width is set at 10 spaces, and form mode is clear.)

ALTERING DECIMAL PRECISION

Zero through 12 decimal places can be displayed for each entry.

TYPE **P**

to change decimal precision for the entire column.

If the cursor is in column A,

the prompt will read:

Column A Precision (0..12):

Enter the number of decimal places needed. The precision is adjusted for the entire column. To adjust the decimal precision of a single entry, follow all of the above steps, but enter E in front of the number of decimal spaces.

EXAMPLE

To change the decimal precision of the current cell only,

TYPE **;F**

The prompt will read:

P)recision (2) or W)idth (10) or Form mode (clear)

TYPE **P**

The prompt will read:

Column A Precision (0..12)

TYPE **E4**

PRESS **RETURN**

The decimal precision at the current cursor location is now 4, while the decimal precision of the rest of the column remains at 2.

ALTERING COLUMN WIDTH

Columns are set at 10 spaces. Columns can be adjusted from 3 to 63 spaces.

TYPE **;F**

Select W to alter the current column width.

TYPE **W**

The prompt will read:

Column B Width (3..63)

TYPE **the number of spaces for that column**

PRESS **RETURN**

A column is of uniform width throughout. A single cell in a column can not be a different width than the rest of the column.

ALTERING FORM MODE

The standard form mode moves the cursor from left-to-right, top-to-bottom, cell-to-cell. It does not skip cells. This standard cursor course can be rearranged by changing the form mode and then placing the form mode on automatic. The cursor will then follow the prearranged pattern.

To alter the form mode, place the cursor in what is to be the first cell of the new cursor course.

TYPE **;F**

Select F to set the form mode.

TYPE **F**

Repeat this sequence by typing ;FF in the selected cells until the cursor pattern is completed. Now execute the ;A command. (See AUTOMATIC FORM COMMAND.) The words FORM CONTROL MODE will appear at the bottom left of the screen. The cursor will jump to each cell, as specified, allowing new information to be entered.

To return to the clear form mode, place the cursor in each cell where the mode was previously changed.

TYPE **;F**

When the prompt reads:

P)recision (2) or W)idth (10) or F)orm Mode (set)

TYPE **F**

The form mode will return to clear.

;G GOTO COMMAND

This command moves the cursor from cell to cell without using the cursor controls. (Same as TAB.)

TYPE **;G**

The prompt will read:

goto > A1

If RETURN is pressed, the cursor will go to cell A1.

If another location is preferred, enter that cell location at the prompt. The cursor will go to the specified location, when RETURN is pressed.

;H HELP COMMAND

The Help command is used to remove the CalcStar window from the display screen and to replace it with the Help Menu. The Help Menu contains information that can be helpful while inputting data into the CalcStar array. Specifically, the menu contains information on CURSOR CONTROLS, DATA ENTRY, EXTENDED COMMANDS, and MATHEMATICAL EQUATIONS. To return to the CalcStar window after accessing the Help command, PRESS RETURN.

;I INSERT COMMAND

This command is used to insert blank rows between existing rows and blank columns between existing columns.

TYPE **;I**

The prompt will read:

Insert: R)ow C)olumn

Insertion will be made at the current cursor location and the column formerly in that position will be moved one column to the right. If a row is inserted, the insertion will be made at the current cursor location and the row formerly in that position will be moved down one row.

ALL FORMULAS AND CELL COORDINATE REFERENCES WILL BE AUTOMATICALLY ADJUSTED.

;L LOAD COMMAND

All files are assigned names by the user. These files are stored on disks. To get the file from the disk onto the CRT, the file must be accessed and loaded into the memory.

TYPE **;L**

The prompt will read:

File name: (make sure file is saved)

Enter the name of a file that was previously saved.

PRESS **RETURN**

The prompt will read:

Load position : A1

If the file is to be displayed at the location A1, PRESS RETURN.

If the upper left corner is to be positioned at another location, enter the coordinates of that location and PRESS RETURN.

;M MERGE COMMAND

This command allows for the merging of two or more files to create one file containing the information contained in all of the files.

TYPE **;M**

The prompt will read:

File name : (make sure file is saved)

Enter the name of the file to be merged with the worksheet file currently on the screen.

The prompt will read:

Load position : A1

SEE CAUTION BEFORE CONTINUING

This is the position where the upper left-hand corner of the new file will be placed in the existing file. If the file is to be merged at a position other than A1, enter the location coordinate. Any number of files can be merged. (As long as your system contains enough memory to hold that amount.)

[CAUTION. THE FILE BEING MERGED WILL OVERRIDE THE FILE ON THE SCREEN IN TERMS OF COLUMN WIDTH, PRECISION, ETC. ALSO, IF BOTH FILES HAVE ENTRIES IN THE SAME CELLS, THE INFORMATION IN THE FILE BEING MERGED WILL OVERRIDE THE INFORMATION IN THE CELL OF THE FILE ON THE SCREEN.]

;O ORDER COMMAND

There are two uses of the ORDER COMMAND. The ORDER COMMAND may be used to change the direction of cursor movement. When the CalcStar program is accessed, L-R is displayed in the current data area. When the ORDER COMMAND is invoked, the L-R is changed to T-B. This means that when the cursor is moved using the RETURN key, it will move from top-to-

bottom instead of left-to-right. To return the cursor movement to left-to-right, invoke the ORDER COMMAND again.

The ORDER COMMAND is also used in conjunction with the RECALCULATE COMMAND (;R). When the RECALCULATE COMMAND is entered, the worksheet is recalculated from left-to-right, top-to-bottom. Sometimes, this order of recalculation will not take into account changes that have an effect on the recalculation of the worksheet.

If the values at the top of each column are dependent upon the entries at the bottom of the columns, you must invoke the ORDER COMMAND before recalculating, for the values to be calculated properly.

;P PRINT COMMAND

By using this command, an entire file can be printed to the printer, an entire file can be printed to a disk, a partial file can be printed to the printer, or a partial file can be printed to a disk.

TYPE **;P**

The prompt will read:

To which file? PRINTER :

PRINTING TO THE PRINTER

If a physical printout on paper is what is wanted,

PRESS RETURN

The prompt will then read:

top left corner : A1

If the printout is to begin with the information contained in cell A1,

PRESS **RETURN**

If the printout is to begin at another location, enter that location's coordinates.

The prompt will then read:

bottom right corner : _____

(The coordinate of the farthest right-hand cell in the lowest row that contains data will be displayed by the program.)

If this is not the position where the report is to end,

TYPE **the proper position**

PRESS **RETURN**

The prompt will now read:

Form length : CONTINUOUS

By PRESSING the RETURN key following this prompt, 66 lines will be printed per page. If this is not to be the case, enter the number of lines per page that is required.

If the number of lines is to be other than 66,

The prompt will read:

Stop on each page (y,n)?

By entering y, the printer will stop at the end of each page and only resume printing when the SPACE BAR is pressed. This is useful when inserting individual sheets of paper such as letterhead.

By entering n, the file will be printed without pausing.

The prompt will then read:

Printer width : 132

If the printer is using 14" paper,

PRESS **RETURN**

If the printer uses 8½" paper,

TYPE **80**

PRESS **RETURN**

the prompt will read:

Report printing...
Make sure printer and paper are ready.

At this point, the PRINT COMMAND can still be terminated, if desired.

To terminate the PRINT COMMAND,

PRESS **ESC**

The operation will return to the edit line.

If the operation is continued, and A1 was not chosen as the top left corner,

The prompt will read:

Fix ordinates (y,n)?

If y is entered, the column and row headings will be printed, if they are contained in Row 1 and Column A, even if they are not contained in the section of the array that is to be printed.

If n is entered, the array will print exactly as it is shown in the window.

The prompt will read:

Title >

TYPE **the Title of the report to be printed.**

PRESS **RETURN**

The prompt will read:

Title >

You may enter as many titles and subtitles as you wish. The report will begin printing when you PRESS RETURN without entering a title.

PRINTING TO THE PRINTER. A PARTIAL FILE

Printing a partial file is similar to printing an entire file. The only difference is different top left and bottom right corners may be specified.

The prompt will read:

top left corner: A1

You may enter another coordinate where the report is to begin printing.

The prompt will read:

Bottom right corner : _____

The space will contain the coordinates of the extreme bottom right corner. Enter the coordinates for a partial printout. The rest is the same as printing an entire file.

PRINTING TO A TEXT FILE (Cannot be reloaded by CalcStar)

TYPE **;P**

The prompt will read:

To which file? PRINTER :

Enter the name of a disk file that the file in memory is to print to.

TYPE **a filename**

PRESS **RETURN**

The resulting disk file will contain the information displayed on the screen, when the file was a CalcStar worksheet. Formulas will not be saved in the text file format. The file will be assigned a .TXT filename extension automatically if no other extension is assigned by the user, and may be edited in WordStar.

PRINTING TO A DATA FILE (Cannot be reloaded by CalcStar)

TYPE **;P**

When the prompt reads:

To which file? PRINTER :

TYPE **>filename**

PRESS **RETURN**

The file will be saved in data file format with a .DTA extension. Each row in the CalcStar worksheet becomes a record; each cell becomes a field or 'data variable.'

;Q QUIT COMMAND

When this command is accessed, the CalcStar program is exited and the operating system is entered.

TYPE **;Q**

The prompt will read:

verify Y/N –

Verification of this command is a precaution because if the CalcStar program is exited and there is a file in the memory that has not been saved, that file will be deleted. (See SAVE COMMAND).

If Y is entered, the user is returned to the operating system.

If N is entered, the user is returned to the CalcStar edit line.

;R RECALCULATE COMMAND

This command initiates the recalculation of all of the entries in the CalcStar array or a single entry.

TYPE **;R**

The prompt will read:

Recalculate: A)ll E)ntry

RECALCULATING ALL

After an entry has been made which may change the outcome of other entries in the array, access the RECALCULATE COMMAND. The entries will be recalculated based on the information added to the worksheet. If there are values that are not affected by this change, they will not be altered. Before using the RECALCULATE COMMAND see the ORDER COMMAND. The ORDER COMMAND may be necessary to reevaluate the information accurately.

RECALCULATING AN ENTRY

This option can be used to recalculate a single entry when it is the only one affected by a change. The recalculation will take place at the current cursor location.

;S SAVE COMMAND

This command allows information in the memory to be taken from the memory and stored on a disk. It is a good idea to stop writing and save the information at regular intervals to protect the work from unforeseen disasters, such as temporary power failures.

TYPE **;S**

The prompt will read:

File name:

Choose a name for the file. It can contain no more than 8 characters, with no extension. A .CSD extension is automatically assigned.

TYPE **the File Name**

PRESS **RETURN**

The prompt will read:

Password (<CR>=none):

A secret password that will protect the file from unauthorized access or accidental deletion may be entered. If you do not want to use a password,

PRESS **RETURN**

If you want a password:

TYPE **the password**

The password will not be seen on the screen.

PRESS **RETURN**

The prompt will read:

Again:

Re-enter the password

to confirm that it is correct. To access a file that is protected by a password, the password must be entered correctly.

The prompt will read:

P)artial or A)ll

SAVING AN ENTIRE FILE

TYPE **A**

to save the entire file.

SAVING A PARTIAL FILE

TYPE **P**

to save a partial file.

The prompt will read:

top left corner : A1

If the top left corner of the partial file is to be at a different location than A1, enter the coordinates of that location and PRESS RETURN.

The prompt will read:

bottom right corner : _____

This is the last coordinate of the file. If the file is to end at another coordinate position, enter it and PRESS RETURN.

CalcStar will now save the partial file as requested.

SAVING A FILE UNDER AN EXISTING FILE NAME

TYPE **;S**

When the prompt reads:

File name :

TYPE **an existing file name**

PRESS **RETURN**

The prompt will read:

File exists. Destroy old contents (y,n)?

If **n** is entered, the system will abort the SAVE COMMAND and control will return to the edit line.

If **y** is entered, and there is not a password protecting the file, the contents of the file will be deleted to make room for the new information.

Continue either by SAVING AN ENTIRE FILE or SAVING A PARTIAL FILE.

SAVING UNDER AN EXISTING NAME THAT IS PASSWORD-PROTECTED

Proceed as for SAVING A FILE UNDER AN EXISTING FILE NAME until the prompt reads

Verify password to remove :

If the password is correctly identified, the information in the file will be deleted to make room for the new information. Follow the above steps for completion of the procedure. If the password is entered incorrectly, control will return to the edit line.

;W WHAT COMMAND

The CalcStar window has room to show only 10 rows, and a specific number of columns, depending upon the column widths. When working in rows 11 through 255, the headings in ROW 1 are not displayed on the screen. This makes it very difficult to determine what the values on the screen represent. By using the WHAT COMMAND the row and column and headings will be displayed for the current cursor location.

TYPE **;W**

The edit line will read:

row, column = _____, _____
(The blanks are filled in with the headings.)

If either the row or column does not have a heading at particular coordinate, a _____ will appear.

FOR THIS COMMAND TO WORK, THE HEADINGS MUST APPEAR IN ROW 1 AND COLUMN A. OTHERWISE A BLANK LINE WILL BE INDICATED.

;= LOCK OR EXTENDED WHAT COMMAND

LOCKING IN COLUMN AND ROW HEADINGS

This command is similar to the WHAT COMMAND, but instead of displaying the row and column headings for the current cursor location only, it locks either ROW 1, COLUMN A, or both on the screen so the headings are always displayed, until they are unlocked.

Place the cursor at cell A1.

TYPE ;=

The prompt will read:

Lock: R)ow C)ol B)oth

Depending upon which is chosen, the row, column, or both will be displayed until the ;= command is entered again.

LOCKING IN TWO OR MORE ROWS AND COLUMNS

Several rows and columns may be locked onto the screen at one time. This is done by placing the cursor at the innermost edge of the area to be locked. For example, if the first two columns and the first three rows are to be locked, place the cursor at cell B3 before executing the ;= command.

TYPE ;=

The prompt will read:

Lock: R)ow C)ol B)oth

Choose what is to be locked.

To double check the rows and columns that were locked, check the CalcStar window for the presence of asterisks next to the row and column labels that were to be locked.

To unlock the rows, columns or both, RE-TYPE the LOCK COMMAND.

;? SPACE COMMAND

This command checks the available space left in memory for your worksheet. When entering a lengthy report, it is a good idea to check how much memory space is available.

TYPE **;?**

The prompt will read:

Room for _____ entries.

The blank will be filled in with the approximate number of entries that can still be made before running out of memory. If the memory is running low, use the SAVE COMMAND to move the information from memory to disk.

'MEMORY GETTING LOW' MESSAGE

The system will display this message when the memory space is running low. It will display on the right side of the screen. If this message appears, no more entries should be made without saving.

;* EXTENDED SCREEN COMMAND

The command extends the screen from 10 rows to 15 rows by removing the top portion of the screen that contains the directory of commands, cursor movements, and functions.

TYPE ;*

The screen will be extended to include the 5 rows below what was previously on the screen.

To bring back the directory,

TYPE ;*

TAB GOTO COMMAND

Using the TAB key is the same as using the GOTO COMMAND. It moves the cursor to a given cell without using the cursor control keys.

TYPE **TAB**

The prompt will read:

goto > A1

PRESS **RETURN**

to go to cell A1.

To go to a different cell, enter the coordinates of that cell and PRESS RETURN.

14.2 TEXT FUNCTIONS

/C CENTER JUSTIFICATION

This function centers text entries in a cell. All text is automatically left justified. To center an entry, position the cursor in the cell where the entry is to be made. Before you enter the information,

TYPE **/C and the information**

PRESS **RETURN**

The entry will be centered.

Text that has already been entered into the array can also be centered. Move the cursor to the cell that contains the text to be centered.

TYPE **/C**

PRESS **RETURN**

The text in the cell will be centered.

[NUMERIC ENTRIES CAN NOT BE CENTERED. IF YOU TYPE /C IN FRONT OF A NUMERIC ENTRY, IT BECOMES A TEXT ENTRY. NUMERICS ARE ALWAYS RIGHT JUSTIFIED.]

/L LEFT JUSTIFICATION

This function allows you to left justify text in a cell if it has been right or center justified.

TYPE **/L and the information**

PRESS **RETURN**

The entry is left justified.

[NUMERIC ENTRIES CANNOT BE LEFT JUSTIFIED. IF YOU TYPE /L IN FRONT OF A NUMERIC ENTRY, IT BECOMES A TEXT ENTRY. NUMERICS ARE ALWAYS RIGHT JUSTIFIED.]

To change a numeric entry to a text entry after a numeric value has been entered, you must delete the cell entry and re-enter the value as text.

/R RIGHT JUSTIFICATION

This function is used to right justify information in a cell. All numerics are automatically right justified, but text is not. To right justify text,

TYPE **/R and the information**

PRESS **RETURN**

To right justify information already entered into a cell, position the cursor in that cell.

TYPE **/R**

PRESS **RETURN**

The information will be right justified.

[NUMERIC ENTRIES ARE AUTOMATICALLY RIGHT JUSTIFIED. IF YOU TYPE /R IN FRONT OF A NUMERIC ENTRY, IT BECOMES A TEXT ENTRY.]

To change a numeric entry to a text entry after a numeric value has been entered, you must delete the cell entry and re-enter the value as text.

/P PAGE BREAK

This function is used in conjunction with the PRINT COMMAND. By inserting /P in the first column of a row in the worksheet, the printer will stop printing and skip to the next sheet of paper and continue printing. It will continue printing on that page until another /P is is encountered or until the number of lines specified by the PRINT COMMAND have been printed on the page.

A ROW THAT CONTAINS /P SHOULD CONTAIN NO OTHER INFORMATION.

See PRINT COMMAND for further information on printing.

/= REPEAT FUNCTION

This function allows you to repeat a character or characters throughout a cell. To do this, place the cursor in the cell where the character is to be.

TYPE /=_____

(Place the character/characters to be repeated on the line following the equal sign.)

PRESS **RETURN**

The character/characters have filled the entire width of the cell.

! VALUE HOLDER

This function allows you to recompute an input value before it is stored in the table. For example, suppose you wanted to enter the data for a previous period, adjusted for inflation. That is, you want to enter the data for last year with the addition of a 10% adjustment for inflation. To do this you would enter !110%! in the position of the cursor. The indeterminate value ?n? will

appear in that cell, and it will remain there until a number has been entered. The value holder formula, in this case !110! will continue to modify future entries until deleted.

Use of the RECALCULATE COMMAND will not affect this entry. This function applies only when the data is initially entered.

\ COMMENT FUNCTION

Use of this function allows you to insert a comment in a cell with numeric data. The comment does not affect what is in the cell and appears only on the edit and contents lines, not in the window nor on the printout.

To use this function, place the cursor in the cell where the comment is pertinent.

> TYPE **appropriate numeric entry \ and the comment**

This function is useful at the SUM line of a long row or column of numbers. On the contents line the sum of the row would be displayed along with a comment such as \1982 TAXES.

DO NOT CONFUSE THE \ WITH THE /. SOME KEYBOARDS DO NOT CONTAIN THE \, SO THE COMMENT FUNCTION IS NOT AVAILABLE.

^ TEXT NUMERIC DATA TOGGLE

CalcStar distinguishes between two types of entries, TEXT and NUMERIC. TEXT entries should be used for headings, labels, and captions. They are ignored during operations that involve arithmetic commands and functions. NUMERIC entries are right justified and are taken into account during the RECALULATIONS and MATHEMATICAL FUNCTIONS.

To determine which category an entry fits into, there is a set of guidelines the CalcStar program follows. An entry which begins with the characters 0-9, +, −, ., !, or (are determined to be NUMERIC entries. An entry which begins with any other character is assumed to be a TEXT entry.

At times, it may be necessary to label a TEXT entry with one of the characters CalcStar reads as a NUMERIC entry and vice versa. To have a NUMERIC entry read as a TEXT entry or a TEXT entry read as a NUMERIC entry enter the information and then press ^.

@ FUNCTION

This function allows you to move the cursor around the screen. When you have located the entry you would like to use, execute the @ Function to enter the cell coordinate at the cursor location into the current location. If you would like to copy the value from cell A1 into cell D3, move the cursor to cell D3.

TYPE +

Move the cursor to cell A1,

TYPE @

PRESS **RETURN**

The information in A1 will be copied into D3 and the cursor will return to D3.

14.3 CURSOR CONTROLS

THE CTRL KEY

When CTRL appears in front of a character, you are to hold down the CTRL key while you type the other appropriate key.

CTRL D CURSOR CONTROL

CTRL D will move the cursor one column to the right from its present location unless the cursor is in column DW, then it will not move.

CTRL E CURSOR CONTROL

CTRL E will move the cursor straight up one row from its present position, unless it is in row 1, then it will not move.

CTRL H or BACKSPACE CURSOR CONTROL

CTRL H, and also the BACKSPACE or DELETE key, will delete the character on the edit line and other input lines.

CTRL S CURSOR CONTROL

CTRL S moves the cursor one column to the left of its present location, except when the cursor is in Column A, then there is no movement.

CTRL X CURSOR CONTROL

CTRL X will move the cursor straight down one row from its present location, except when it is in row 255, then it will not move.

CTRL Z CURSOR CONTROL

Depending upon the position of the direction indicator, CTRL Z will move the cursor to the first column of the next row if the direction is left-to-right, or it will move the cursor to the first row of the next column if the direction indicator is top-to-bottom.

RETURN KEY CURSOR CONTROL

The RETURN key will move the cursor one column to the right if the edit line is blank unless the direction indicator is top-to-bottom. If you have typed an entry on the edit line, RETURN will enter the data into the current cursor location and the cursor will remain at that location. PRESS RETURN again and the cursor will move one column to the right. If the cursor is in column DW, PRESSING RETURN will cause the cursor to move to the first column of the next line. If the direction indicator is top-to-bottom, the cursor moves downward rather than right.

14.4 MATHEMATICAL FUNCTIONS

There are four types of mathematical functions recognized by the CalcStar program. These are: ARITHMETIC FUNCTIONS, SYSTEM FUNCTIONS, LINEAR FUNC-

TIONS, and CONDITIONAL FUNCTIONS. Use these functions to define formulas within the CalcStar array. These functions are also used in conjunction with the EVALUATE FUNCTIONS.

ARITHMETIC FUNCTIONS

There are five ARITHMETIC FUNCTIONS used by CalcStar. They are + (addition), – (subtraction), * (multiplication), / (division), and % (percentage). Use these symbols to perform simple arithmetic functions within the CalcStar array. For instance, you may add entries: +E4+G2. The system will add the entries and place the answer to the equation in the current cursor location. You may even do more complex equations with these symbols: (H6–A2)/(R4+R5)*100. Equations are read from left-to-right with the calculations in parentheses done first. Multiplication and division are done before addition and subtraction.

+ ADDITION

The plus sign (+) is used to add numbers to numbers. The numbers may be actual values or the cell coordinate in which the value is contained.

The + may be used to add two or more items together.

EXAMPLES

ADDING NUMBERS TO NUMBERS:

349.2+561.75+3

ADDING NUMBERS TO VALUES IN CELLS

+A4+12

CalcStar will add the value contained in cell A4 to 12.

ADDING VALUES IN CELLS TO VALUES IN CELLS

+A4+B4+C12

The values contained in each cell will be added together.

— SUBTRACTION

The minus sign (—) is used to subtract numbers. The numbers may be actual values or the cell coordinate in which the value is contained. The — may be used to subtract two or more items.

EXAMPLES

SUBTRACTING NUMBERS FROM NUMBERS

500.2—112.39—50

SUBTRACTING NUMBERS FROM VALUES IN CELLS/VALUES IN CELLS FROM NUMBERS

512—G3

CalcStar will subtract the value contained in cell G3 from 512.

SUBTRACTING VALUES IN CELLS FROM VALUES IN CELLS

—A4—G3—H2

The values contained in each cell will be subtracted in the order the equation specifies.

* MULTIPLICATION

The asterisk (*) is used to multiply numbers. The numbers may be actual values or the cell coordinate in which the value is contained. The * may be used to multiply two or more items.

EXAMPLES

MULTIPLYING NUMBERS

3*2.5*400

MULTIPLYING NUMBERS AND VALUES IN CELLS

4*A5

CalcStar will multiply the value of cell A5 by 4.

MULTIPLYING VALUES IN CELLS

+B5*C2*E2

The values contained in each cell will be multiplied together.

/ DIVISION

The slash (/) is used to divide numbers. The numbers may be actual values or the cell coordinate in which the value is contained. The / may be used to divide two or more items.

EXAMPLES

DIVIDING NUMBERS

30/12

DIVIDING NUMBERS AND VALUES CONTAINED IN CELLS

14/A4

CalcStar will divide 14 by the value contained in cell A4.

DIVIDING VALUES CONTAINED IN CELLS

+G4/A4/B4

The value contained in G4 will be divided by the value at A4 and that value will be divided by the value at B4.

% PERCENTAGE

CalcStar has the capacity to determine the percentages of numbers. The numbers may be actual values or the cell coordinate in which the value is contained.

EXAMPLES

TAKING THE PERCENTAGE OF A NUMBER

100%12

TAKING THE PERCENTAGE OF A VALUE CONTAINED IN A CELL

12%(A4)

TAKING THE PERCENTAGE OF A NUMBER AND A VALUE CONTAINED IN A CELL

+A4%(A5/45)

SYSTEM FUNCTIONS

There are 10 SYSTEM FUNCTIONS that CalcStar recognizes. They are: MAX(list or range), MIN(list or range), SUM(list or range), CNT(list or range), AVG(list or range), SQRT(value), LOG(value), LN(value), ABS (value), and EXP(value).

When entering a SYSTEM FUNCTION as the first value in a cell entry remember to place a + or a − in front of the function. If a + or a − is not placed in front of the function, or if ^, the text/numeric data toggle, is not entered behind the function, the entry will be read as a text entry instead of a numeric entry.

MAX(list or range) MAXIMUM VALUE IN SET OF VALUES

This function is used to determine the maximum value in a range of entries.

EXAMPLE

+MAX(A4>A10)

[Values contained in cells A4>A10 are: 3, 5, 7, 12, 15, 0, 2; respectively.]

The answer is 15, which is contained in cell A8.

MIN(list or range) MINIMUM VALUE IN A SET OF VALUES

This function is used to determine the minimum value in a list or range of entries.

EXAMPLE

+MIN(A4>A10)

[Values contained in cell A4>A10 are: 3, 5, 7, 12, 15, 0, 2; respectively]

The answer is 0, which is contained in cell A9.

SUM(list or range) SUM RANGE OF ENTRIES

This function is used to sum a range of entries.

EXAMPLE

+SUM(A4>A10)

[Values contained in cells A4>A10 are: 3, 5, 7, 12, 15, 0, 2; respectively]

The answer is 44.

CNT(list or range) COUNT ITEMS IN LIST

This function counts the number of numeric cells in a list.

EXAMPLE

+CNT(A4>A10)

[Values contained in cells A4>A10 are: 3, 5, 7, 12, 15, 0, 2; respectively]

The answer is 7.

AVG(list or range) MEAN AVERAGE VALUE OF ENTRIES

This function will find the mean value of a range of entries. It divides the SUM(list) by the CNT(list).

EXAMPLE

+AVG(A4>A10)

[Values contained in cells A4>A10 are: 3, 5, 7, 12, 15, 0, 2; respectively]

The answer is 6.28

SQRT(value) SQUARE ROOT

This function will determine the square root of an entry or a range of entries.

EXAMPLE

+SQRT(A4+3)

CalcStar will add the value contained in A4 to 3 and then take the square root of the total.

LOG(value) LOGARITHM BASE 10

This function will determine the Base 10 Logarithm for a given value. A Base 10 Logarithm, more commonly known as a common logarithm is defined as:

If $x=10^y$

then $y=\log_{10}x$

or y=+**LOG(x)**

EXAMPLE

+LOG(10)=1

+LOG(125)=2.09

LN(value) NATURAL LOGARITHM

Use this function to determine the natural logarithm of a value. A natural logarithm is similar to a common logarithm, but instead of having a base of 10, a natural logarithm has the irrational number 2.71828 ... as the base. The symbol for this irrational number is e.

If $x=e^y$

then $y=\log_e x$

or **y=+LN(x)**

also **x=+EXP(y)**

EXAMPLE

+LN(1)=0

+LN(63)=4.14

ABS(value) ABSOLUTE VALUE

This function determines the absolute value of an entry. The absolute value of a non-zero number is the corresponding positive number: thus the absolute value of 3 is 3, and the absolute value of −3 is 3. The absolute value of zero is zero.

EXAMPLE

+ABS(432−678)=246

EXP(value) EXPONENTIAL VALUE

This function determines the exponential value of the entry by taking the value of e, 2.7182818, to the power you enter.

If $x=e^y$

then **x=+EXP(y)**

also **y=+LN(x)**

EXAMPLE

+EXP(2)=7.38

+EXP(10)=22026.46

NOTE: The double asterisk, **, is used to identify exponents, or to raise a value to a power. When using this function, please note that the answers determined by CalcStar can be off up to .1, depending upon the decimal precision of the values used.

LINEAR FUNCTIONS

CalcStar recognizes 4 Linear Functions. They are: REGR(range, first coord. of other range), PROJ(value), DEPD(value), and SLOPE( ).

REGR(range, 1st coord of other range) REGRESSION FUNCTION

Computes a linear regression line and returns the average of the second range (dependent value). This line must be computed prior to the use of any of the other linear functions.

PROJ(value) PROJECTION FUNCTION

Inserts a value for the independent variable into the regression equation and returns the predicted value (the dependent variable).

DEPD(value) DEPENDENT FUNCTION

Inserts a value for the dependent variable into the regression equation and solves for and returns the best estimate for the independent variable.

SLOPE( ) SLOPE OF LINEAR FUNCTION

Returns the slope of the regression equation which tells us that the dependent variable is increasing (+) or decreasing (−) as a function of the independent variable.

CONDITIONAL FUNCTIONS

CalcStar can perform conditional functions. Conditional functions are equations that give you a chance to specify certain conditions that must be met in order for the function to be carried out.

For example, you can tell CalcStar to enter information in a given cell only if a certain condition is met. Assume you are doing your company's payroll. Part of the payroll includes determining the deductions for each employee. Since there is a standard percentage for FICA you have already programmed that into your payroll determination file, but there is a yearly limit on the amount of FICA that can be deducted per employee. Using a conditional function, you can tell CalcStar to deduct the standard amount until the total amount withdrawn reaches the specified limit. After the limit has been reached CalcStar will no longer deduct FICA from the employee's wages.

There are two types of conditional statements that CalcStar recognizes. These are the IF, THEN STATEMENT and the IF, THEN, ELSE STATEMENT.

Both of these functions recognize the same set of comparisons. They are:

>	GREATER THAN
=	EQUAL TO
<>	NOT EQUAL TO
<=	LESS THAN OR EQUAL TO
>=	GREATER THAN OR EQUAL TO
*	AND
+	OR

An IF, THEN STATEMENT will take the following format:

+_____<_____:_____

What this equation is saying is: If the first value is less than the second value, then enter the third value in the current cursor location.

An IF, THEN, ELSE STATEMENT takes this format:

+_____>=_____:_____:_____

What this equation is saying: If the first value is greater than or equal to the second value, then enter the third value into the current cursor location, but if it is not, then enter the fourth value into the current cursor location.

EXAMPLE

+A46>0:A45/A46:1

Which means:

If the value in cell A46 is greater than zero, then divide the value in cell A45 by A46 and enter the value in the current cursor location. But, if the value in A46 is not greater than zero, enter 1 in the current cursor location.

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APPENDIX A: ERROR MESSAGES

The following is a list of Error Messages that may be displayed at any time while using the CalcStar program.

SECTION 1 ENTRY ERRORS

Bad coord - coordinate entered cannot be used for intended purpose, or coordinate was entered incorrectly.

bad form length - specified form length is not within required range (1..66).

bad range coord - range of coordinates cannot be used for intended purpose.

can't create - not enough memory left to create another cell.

can't open - not enough space available on disk, or file is 'read only.'

can't open file - not enough room to open file on disk.

couldn't read TERMCAP.SYS - system could not read a necessary file. Re-install CalcStar using INSTCS.file.

DATA IS PROBABLY DAMAGED - from entering too long of report and there was not enough memory.

data too wide - specified printing section is too wide for specified printing width.

delete character is underscore ('_') - certain machines will have the underscore key as their delete key.

ERROR-> <expression>? - system could not interpret entry correctly.

ERROR: would delete ref(s) at <coord> - specified deletion would eliminate data on which other formulas are dependent, so formulas must first be changed.

FATAL ERROR: not on disk - disk is missing an important CalcStar file and cannot operate until it is on the disk.

FILEWRITE ERROR - system had trouble writing file to the disk.

math op error numeric overflow - space is not large enough for intended operation (calculation).

math op error divide by zero - expression would lead to a value being divided by 0, which is undefined.

MEMORY IS TOO LOW - Not enough room to make the intended insertion.

!n! - column is not wide enough to display result.

No form flags - no automatic form modes have been set.

Not along row/column - specified copy is not in a straight vertical or straight horizontal line.

not ok - password is not correct.

OUT OF MEMORY - no memory left; something must be deleted.

Prec. must be 0..12 - precision entry is not within required range.

READ ERRORS - there are bad blocks where the file is stored.

Sizes don't agree - number of coordinates you are copying from and number of coordinates you are copying to are different.

Width must be 3..63 - column width entry is not within required range.

WRITE ERROR - disk gets full while writing a file.

Write error: Password not the same - second password is not the same as the first password.

write error <file> not found - file does not exist as entered.

write error I/O - disk needs more file space or directory space.

write error Close - disk needs more file space or directory space.

End > start - in saving a partial file, the top left coordinate must come before the bottom right coordinate.

write error bad coord - invalid coordinate entered.

WRITE CLOSE ERROR - diskette is wrong or insufficient room.

SECTION II EVALUATION ERRORS

0	value range error: math overflow divide by zero function cannot evaluate value entered
1	illegal coordinate or wrong coordinate format
2	range is not a row or column
3	missing a '(' or ')'
4	unknown function, function typed incorrectly
6	terminal expression is illegal
7	illegal characters at the end of the line
8	number is not in correct form
12	too many parenthetical levels
255	illegal value in REGR function

APPENDIX B: CSDUMP

INTRODUCTION

With CalcStar we have included a separate, but very helpful secondary program called 'CSDUMP.' This support program allows you to print out a listing of the contents of the CalcStar array. That means you may have a printed copy of all the formulas and specifications that are behind the scenes to create your worksheet (which only includes calculated results.) CSDUMP prints out each coordinate that has a data entry and informs you of the column width, type of entry, including justification if the entry is text, and the contents of the entry.

The importance of CSDUMP is the ability to print out the contents of the worksheet in order to be able to store it in a safe place. That way you still have a copy of your hard work, in case your disk is ruined, lost, or erased.

Let's take a minute to demonstrate the use of CSDUMP so you will know how to obtain permanent copies of your report contents.

PRINTING CSDUMP

To begin, you must exit the CalcStar program, using the Quit Command. When you exit, make sure you have saved the file you were working on. For our example, we will use a file that you have entered onto the disk. Let's dump the file CHEKBOOK.

STEP 1

At the operating system prompt:

TYPE **CSDUMP**

PRESS **RETURN**

STEP 2

The prompt will read:

CalcStar file name (<Return> to quit:

TYPE **CHEKBOOK.CSD**

STEP 3

The prompt will read:

Comments?

If you would like to include a one line title on the printout, enter it now.

If you do not want a title,

PRESS **RETURN**

STEP 4

The prompt will read:

Output file (<Return> for printer):

PRESS **RETURN**

The file will begin printing immediately.

WRITING TO ANOTHER FILE

You can also write CSDUMP files to other files. If, instead of printing to the printer, you want a copy of the CSDUMP that is readable by WordStar, and therefore able to be edited by WordStar, instead of pressing the return key,

When the prompt reads:

Output file (<Return> for printer):

TYPE **CHEKBOOK**

The CSDUMP of CHEKBOOK.CSD will be read to a file, CHEKBOOK.DMP, that can be read by WordStar.

When either the printer is done printing the file, or the file has been written to another file,

The prompt will read:

CalcStar file name (<Return> to quit):

You can enter the file name of another CalcStar file to be dumped or you can press return.

PRESS **RETURN**

CSDUMPs of all of the applications contained in this manual follow.

CalcStar File — Chapters 5, 6, & 7 — CHEKBOOK.DMP

```
Position C1 Width 20 Type:  Text (Centered)       :ISSUE/DEPOSIT
Position D1 Width  8 Type:  Text (Right justified):CHECK
Position E1 Width  8 Type:  Text (Right justified):DEPOSIT
Position A2 Width  8 Type:  Text (Centered)       :CHECK #
Position B2 Width  8 Type:  Text (Centered)       :DATE
Position C2 Width 20 Type:  Text (Centered)       :DESCRIPTION
Position D2 Width  8 Type:  Text (Right justified):AMOUNT
Position E2 Width  8 Type:  Text (Right justified):AMOUNT
Position F2 Width  8 Type:  Text (Right justified):BALANCE
Position A3 Width  8 Type:  Text (Repeating)      :-
Position B3 Width  8 Type:  Text (Repeating)      :-
Position C3 Width 20 Type:  Text (Repeating)      :-
Position D3 Width  8 Type:  Text (Repeating)      :-
Position E3 Width  8 Type:  Text (Repeating)      :-
Position F3 Width  8 Type:  Text (Repeating)      :-
Position F4 Width  8 Type:  Numeric :1250.00 BEGINNING BALANCE =  1250.000000000000
Position A5 Width  8 Type:  Text (Centered)       :101
Position B5 Width  8 Type:  Text (Left justified) :JUL 20
Position C5 Width 20 Type:  Text (Left justified) :GROCERIES-TO-GO
Position D5 Width  8 Type:  Numeric :110 =  110.000000000000
Position F5 Width  8 Type:  Numeric :(+F4+E5-D5) =  1140.000000000000
Position A6 Width  8 Type:  Text (Centered)       :102
Position B6 Width  8 Type:  Text (Left justified) :JUL 21
Position C6 Width 20 Type:  Text (Left justified) :BETTY'S CLOTHING
Position D6 Width  8 Type:  Numeric :533.10 =  533.100000000000
Position F6 Width  8 Type:  Numeric :(+F5+E6-D6) =  606.900000000000
```

```
Position A7 Width  8 Type:  Text (Centered)       :103
Position B7 Width  8 Type:  Text (Left justified) :JUL 21
Position C7 Width 20 Type:  Text (Left justified) :GAS COMPANY
Position D7 Width  8 Type:  Numeric :20.00 =  20.000000000000
Position F7 Width  8 Type:  Numeric :(+F6+E7-D7) =  586.900000000000
Position A8 Width  8 Type:  Text (Centered)       :104
Position B8 Width  8 Type:  Text (Left justified) :JUL 21
Position C8 Width 20 Type:  Text (Left justified) :ELECTRIC COMPANY
Position D8 Width  8 Type:  Numeric :50.00 =  50.000000000000
Position F8 Width  8 Type:  Numeric :(+F7+E8-D8) =  536.900000000000
Position B9 Width  8 Type:  Text (Left justified) :JUL 30
Position C9 Width 20 Type:  Text (Left justified) :PAYCHECK
Position E9 Width  8 Type:  Numeric :1570 =  1570.000000000000
Position F9 Width  8 Type:  Numeric :(+F8+E9-D9) =  2106.900000000000
Position A10 Width  8 Type:  Text (Centered)       :105
Position B10 Width  8 Type:  Text (Left justified) :AUG 1
Position C10 Width 20 Type:  Text (Left justified) :DR. BONES/XRAY
Position D10 Width  8 Type:  Numeric :65 =  65.000000000000
Position F10 Width  8 Type:  Numeric :(+F9+E10-D10) =  2041.900000000000
Position A11 Width  8 Type:  Text (Centered)       :106
Position B11 Width  8 Type:  Text (Left justified) :AUG 1
Position C11 Width 20 Type:  Text (Left justified) :GARY L. BARTON/RENT
Position D11 Width  8 Type:  Numeric :470 =  470.000000000000
Position F11 Width  8 Type:  Numeric :(+F10+E11-D11) =  1571.900000000000
Position A12 Width  8 Type:  Text (Centered)       :107
Position B12 Width  8 Type:  Text (Left justified) :AUG 4
Position C12 Width 20 Type:  Text (Left justified) :SEASIDE AMUSEMENT
Position D12 Width  8 Type:  Numeric :75. =  75.000000000000
Position F12 Width  8 Type:  Numeric :(+F11+E12-D12) =  1496.900000000000
Position A13 Width  8 Type:  Text (Centered)       :108
Position B13 Width  8 Type:  Text (Left justified) :AUG 10
Position C13 Width 20 Type:  Text (Left justified) :INSTANT-DEBT CHARGE
Position D13 Width  8 Type:  Numeric :175 =  175.000000000000
Position F13 Width  8 Type:  Numeric :(+F12+E13-D13) =  1321.900000000000
Position B14 Width  8 Type:  Text (Left justified) :AUG 15
Position C14 Width 20 Type:  Text (Left justified) :PAYCHECK
Position E14 Width  8 Type:  Numeric :1570 =  1570.000000000000
Position F14 Width  8 Type:  Numeric :(+F13+E14-D14) =  2891.900000000000
```

CalcStar File — Chapters 8, 9, & 10 — JOBCOST.DMP

```
Position A1 Width 21 Type:  Text (Right justified):CUSTOMER
Position B1 Width 10 Type:  Text (Right justified):AOK DUCK
Position C1 Width 10 Type:  Text (Left justified) :WADDLE CO.
Position B2 Width 10 Type:  Text (Centered)       :EST.
Position C2 Width 10 Type:  Text (Centered)       :HOURLY
Position D2 Width 10 Type:  Text (Centered)       :OVERHEAD
Position E2 Width 10 Type:  Text (Centered)       :DIRECT
Position A3 Width 21 Type:  Text (Left justified) :DIRECT LABOR - -
Position B3 Width 10 Type:  Text (Centered)       :MANHOURS
Position C3 Width 10 Type:  Text (Centered)       :RATE
Position D3 Width 10 Type:  Text (Centered)       :PERCENTAGE
Position E3 Width 10 Type:  Text (Centered)       :LABOR
Position A4 Width 21 Type:  Text (Repeating)      :-
Position B4 Width 10 Type:  Text (Repeating)      :-
Position C4 Width 10 Type:  Text (Repeating)      :-
Position D4 Width 10 Type:  Text (Repeating)      :-
Position E4 Width 10 Type:  Text (Repeating)      :-
Position A5 Width 21 Type:  Text (Left justified) :Customer Coordination
Position B5 Width 10 Type:  Numeric :16 =  16.000000000000
```

```
Position C5 Width 10 Type:  Numeric :39 =  39.000000000000
Position D5 Width 10 Type:  Numeric :175 =  175.000000000000
Position E5 Width 10 Type:  Numeric :+D5%(C5*B5)+(C5*B5) =  1716.000000000000
Position A6 Width 21 Type:  Text (Left justified) :Prep. Work
Position B6 Width 10 Type:  Numeric :24 =  24.000000000000
Position C6 Width 10 Type:  Numeric :5 =  5.000000000000
Position D6 Width 10 Type:  Numeric :175 =  175.000000000000
Position E6 Width 10 Type:  Numeric :+D6%(C6*B6)+(C6*B6) =  330.000000000000
Position A7 Width 21 Type:  Text (Left justified) :Clean Floors
Position B7 Width 10 Type:  Numeric :40 =  40.000000000000
Position C7 Width 10 Type:  Numeric :15 =  15.000000000000
Position D7 Width 10 Type:  Numeric :175 =  175.000000000000
Position E7 Width 10 Type:  Numeric :+D7%(C7*B7)+(C7*B7) =  1650.000000000000
Position A8 Width 21 Type:  Text (Left justified) :Vacuum Rugs
Position B8 Width 10 Type:  Numeric :36 =  36.000000000000
Position C8 Width 10 Type:  Numeric :21 =  21.000000000000
Position D8 Width 10 Type:  Numeric :175 =  175.000000000000
Position E8 Width 10 Type:  Numeric :+D8%(C8*B8)+(C8*B8) =  2079.000000000000
Position A9 Width 21 Type:  Text (Left justified) :Wash Windows
Position B9 Width 10 Type:  Numeric :0 S.C. LABOR =  0.000000000000
Position C9 Width 10 Type:  Numeric :0 =  0.000000000000
Position D9 Width 10 Type:  Numeric :175 =  175.000000000000
Position E9 Width 10 Type:  Numeric :+D9%(C9*B9)+(C9*B9) =  0.000000000000
Position A10 Width 21 Type:  Text (Left justified) :Dust Furniture
Position B10 Width 10 Type:  Numeric :36 =  36.000000000000
Position C10 Width 10 Type:  Numeric :8 =  8.000000000000
Position D10 Width 10 Type:  Numeric :175 =  175.000000000000
Position E10 Width 10 Type:  Numeric :+D10%(C10*B10)+(C10*B10) =  792.000000000000
Position A11 Width 21 Type:  Text (Left justified) :Wash Walls
Position B11 Width 10 Type:  Numeric :54 =  54.000000000000
Position C11 Width 10 Type:  Numeric :12 =  12.000000000000
Position D11 Width 10 Type:  Numeric :175 =  175.000000000000
Position E11 Width 10 Type:  Numeric :+D11%(C11*B11)+(C11*B11) =  1782.000000000000
Position A12 Width 21 Type:  Text (Left justified) :Clean Restrooms
Position B12 Width 10 Type:  Numeric :24 =  24.000000000000
Position C12 Width 10 Type:  Numeric :10 =  10.000000000000
Position D12 Width 10 Type:  Numeric :175 =  175.000000000000
Position E12 Width 10 Type:  Numeric :+D12%(C12*B12)+(C12*B12) =  660.000000000000
Position D14 Width 10 Type:  Text (Centered)       :MATERIAL
Position E14 Width 10 Type:  Text (Centered)       :TOTAL
Position A15 Width 21 Type:  Text (Left justified) :MATERIALS & SUPPLIES
Position C15 Width 10 Type:  Text (Centered)       :COST
Position D15 Width 10 Type:  Text (Centered)       :HANDLING
Position E15 Width 10 Type:  Text (Centered)       :MATERIAL
Position A16 Width 21 Type:  Text (Repeating)      :-
Position B16 Width 10 Type:  Text (Repeating)      :-
Position C16 Width 10 Type:  Text (Repeating)      :-
Position D16 Width 10 Type:  Text (Repeating)      :-
Position E16 Width 10 Type:  Text (Repeating)      :-
Position A17 Width 21 Type:  Text (Left justified) :Disinfectant
Position B17 Width 10 Type:  Numeric :+C17>=0:'' = "        "
Position C17 Width 10 Type:  Numeric :150 =  150.000000000000
Position D17 Width 10 Type:  Numeric :10 =  10.000000000000
Position E17 Width 10 Type:  Numeric :+D17%(C17)+C17 =  165.000000000000
Position A18 Width 21 Type:  Text (Left justified) :Cleanser
Position B18 Width 10 Type:  Numeric :+C18>=0:'' = "        "
Position C18 Width 10 Type:  Numeric :120 =  120.000000000000
Position D18 Width 10 Type:  Numeric :10 =  10.000000000000
Position E18 Width 10 Type:  Numeric :+D18%(C18)+C18 =  132.000000000000
Position A19 Width 21 Type:  Text (Left justified) :Window Cleaner
Position B19 Width 10 Type:  Numeric :+C19>=0:'' = "        "
Position C19 Width 10 Type:  Numeric :0 S.C. LABOR =  0.000000000000
Position D19 Width 10 Type:  Numeric :10 =  10.000000000000
```

```
Position E19 Width 10 Type:  Numeric :+D19%(C19)+C19 =  0.000000000000
Position A20 Width 21 Type:  Text (Left justified) :Paper Towels
Position B20 Width 10 Type:  Numeric :+C20>=0:'' = "        "
Position C20 Width 10 Type:  Numeric :320 =  320.000000000000
Position D20 Width 10 Type:  Numeric :10 =  10.000000000000
Position E20 Width 10 Type:  Numeric :+D20%(C20)+C20 =  352.000000000000
Position A21 Width 21 Type:  Text (Left justified) :Rags
Position B21 Width 10 Type:  Numeric :+C21>=0:'' = "        "
Position C21 Width 10 Type:  Numeric :210 =  210.000000000000
Position D21 Width 10 Type:  Numeric :10 =  10.000000000000
Position E21 Width 10 Type:  Numeric :+D21%(C21)+C21 =  231.000000000000
Position A22 Width 21 Type:  Text (Left justified) :Vacuum Cleaner Bags
Position B22 Width 10 Type:  Numeric :+C22>=0:'' = "        "
Position C22 Width 10 Type:  Numeric :98 =  98.000000000000
Position D22 Width 10 Type:  Numeric :10 =  10.000000000000
Position E22 Width 10 Type:  Numeric :+D22%(C22)+C22 =  107.800000000000
Position B24 Width 10 Type:  Text (Centered)       :EST.
Position C24 Width 10 Type:  Text (Centered)       :HOURLY
Position D24 Width 10 Type:  Text (Centered)       :OVERHEAD
Position E24 Width 10 Type:  Text (Centered)       :DIRECT
Position A25 Width 21 Type:  Text (Left justified) :SUBCONTRACT LABOR
Position B25 Width 10 Type:  Text (Centered)       :MANHOURS
Position C25 Width 10 Type:  Text (Centered)       :RATE
Position D25 Width 10 Type:  Text (Centered)       :PERCENTAGE
Position E25 Width 10 Type:  Text (Centered)       :LABOR
Position A26 Width 21 Type:  Text (Repeating)      :-
Position B26 Width 10 Type:  Text (Repeating)      :-
Position C26 Width 10 Type:  Text (Repeating)      :-
Position D26 Width 10 Type:  Text (Repeating)      :-
Position E26 Width 10 Type:  Text (Repeating)      :-
Position A27 Width 21 Type:  Text (Left justified) :Tom's Window Washers
Position B27 Width 10 Type:  Numeric :64 =  64.000000000000
Position C27 Width 10 Type:  Numeric :25 =  25.000000000000
Position D27 Width 10 Type:  Numeric :50 =  50.000000000000
Position E27 Width 10 Type:  Numeric :+D27%(C27*B27)+(C27*B27) =  2400.000000000000
Position D31 Width 10 Type:  Text (Centered)       :T & E
Position E31 Width 10 Type:  Text (Centered)       :TOTAL
Position A32 Width 21 Type:  Text (Left justified) :TRAVEL/ENTERTAINMENT
Position C32 Width 10 Type:  Text (Centered)       :EXPENSE
Position D32 Width 10 Type:  Text (Centered)       :HANDLING
Position E32 Width 10 Type:  Text (Centered)       :EXPENSE
Position A33 Width 21 Type:  Text (Repeating)      :-
Position B33 Width 10 Type:  Text (Repeating)      :-
Position C33 Width 10 Type:  Text (Repeating)      :-
Position D33 Width 10 Type:  Text (Repeating)      :-
Position E33 Width 10 Type:  Text (Repeating)      :-
Position A34 Width 21 Type:  Text (Left justified) :Auto
Position B34 Width 10 Type:  Numeric :+C34>=0:'' = "        "
Position C34 Width 10 Type:  Numeric :350 =  350.000000000000
Position D34 Width 10 Type:  Numeric :10 =  10.000000000000
Position E34 Width 10 Type:  Numeric :+D34%(C34)+C34 =  385.000000000000
Position A35 Width 21 Type:  Text (Left justified) :Air
Position B35 Width 10 Type:  Numeric :+C35>=0:'' = "        "
Position C35 Width 10 Type:  Numeric :0 =  0.000000000000
Position D35 Width 10 Type:  Numeric :10 =  10.000000000000
Position E35 Width 10 Type:  Numeric :+D35%(C35)+C35 =  0.000000000000
Position A36 Width 21 Type:  Text (Left justified) :Lodging
Position B36 Width 10 Type:  Numeric :+C36>=0:'' = "        "
Position C36 Width 10 Type:  Numeric :0 =  0.000000000000
Position D36 Width 10 Type:  Numeric :10 =  10.000000000000
Position E36 Width 10 Type:  Numeric :+D36%(C36)+C36 =  0.000000000000
Position A37 Width 21 Type:  Text (Left justified) :Food
Position B37 Width 10 Type:  Numeric :+C37>=0:'' = "        "
```

```
Position C37 Width 10 Type:  Numeric :500 =  500.000000000000
Position D37 Width 10 Type:  Numeric :10 =  10.000000000000
Position E37 Width 10 Type:  Numeric :+D37%(C37)+C37 =  550.000000000000
Position A38 Width 21 Type:  Text (Left justified) :Misc.
Position B38 Width 10 Type:  Numeric :+C38>=0:'' = "        "
Position C38 Width 10 Type:  Numeric :0 =  0.000000000000
Position D38 Width 10 Type:  Numeric :10 =  10.000000000000
Position E38 Width 10 Type:  Numeric :+D38%(C38)+C38 =  0.000000000000
Position D40 Width 10 Type:  Text (Centered)       :PERCENTAGE
Position E40 Width 10 Type:  Text (Centered)       :TOTAL
Position A41 Width 21 Type:  Text (Left justified) :MISCELLANEOUS
Position C41 Width 10 Type:  Text (Centered)       :COST
Position D41 Width 10 Type:  Text (Centered)       :OVERHEAD
Position E41 Width 10 Type:  Text (Centered)       :MISC.
Position A42 Width 21 Type:  Text (Repeating)      :-
Position B42 Width 10 Type:  Text (Repeating)      :-
Position C42 Width 10 Type:  Text (Repeating)      :-
Position D42 Width 10 Type:  Text (Repeating)      :-
Position E42 Width 10 Type:  Text (Repeating)      :-
Position A47 Width 21 Type:  Text (Left justified) :PROJECT TOTALS
Position B47 Width 10 Type:  Text (Centered)       :$
Position C47 Width 10 Type:  Text (Centered)       :% OF TOTAL
Position A48 Width 21 Type:  Text (Repeating)      :=
Position B48 Width 10 Type:  Text (Repeating)      :=
Position C48 Width 10 Type:  Text (Repeating)      :=
Position A49 Width 21 Type:  Text (Left justified) :DIRECT LABOR
Position B49 Width 10 Type:  Numeric :+SUM(E5>E12) =  9009.000000000000
Position C49 Width 10 Type:  Numeric :(B49/B55!)*100 =  67.575271156183
Position A50 Width 21 Type:  Text (Left justified) :MATERIAL
Position B50 Width 10 Type:  Numeric :+SUM(E17>E22) =  987.800000000000
Position C50 Width 10 Type:  Numeric :(B50/B55!)*100 =  7.409352075489
Position A51 Width 21 Type:  Text (Left justified) :S.C. LABOR
Position B51 Width 10 Type:  Numeric :+SUM(E27) =  2400.000000000000
Position C51 Width 10 Type:  Numeric :(B51/B55!)*100 =  18.002070238077
Position A52 Width 21 Type:  Text (Left justified) :T & E
Position B52 Width 10 Type:  Numeric :+SUM(E34>E38) =  935.000000000000
Position C52 Width 10 Type:  Numeric :(B52/B55!)*100 =  7.013306530251
Position A53 Width 21 Type:  Text (Left justified) :MISC.
Position B53 Width 10 Type:  Numeric :+SUM(E42) =  0.000000000000
Position C53 Width 10 Type:  Numeric :(B53/B55!)*100 =  0.000000000000
Position A54 Width 21 Type:  Text (Repeating)      :-
Position B54 Width 10 Type:  Text (Repeating)      :-
Position C54 Width 10 Type:  Text (Repeating)      :-
Position A55 Width 21 Type:  Text (Left justified) :TOTAL PROJECT COST
Position B55 Width 10 Type:  Numeric :+SUM(B49>B53) =  13331.800000000000
Position B56 Width 10 Type:  Text (Repeating)      :=
Position A57 Width 21 Type:  Text (Left justified) :/PAGE
Position A58 Width 21 Type:  Text (Right justified):USING MARKUP TO
Position B58 Width 10 Type:  Text (Left justified) :DETERMINE
Position C58 Width 10 Type:  Text (Right justified):SALE PRICE
Position A59 Width 21 Type:  Text (Repeating)      :-
Position B59 Width 10 Type:  Text (Repeating)      :-
Position C59 Width 10 Type:  Text (Repeating)      :-
Position A60 Width 21 Type:  Text (Left justified) :PROJECT COST
Position C60 Width 10 Type:  Numeric :+B55 =  13331.800000000000
Position A61 Width 21 Type:  Text (Left justified) :% MARKUP
Position C61 Width 10 Type:  Numeric :150 =  150.000000000000
Position A62 Width 21 Type:  Text (Repeating)      :-
Position C62 Width 10 Type:  Text (Repeating)      :-
Position A63 Width 21 Type:  Text (Left justified) :SALE PRICE
Position C63 Width 10 Type:  Numeric :+C61%(C60)+C60 =  33329.500000000000
Position C64 Width 10 Type:  Text (Repeating)      :=
Position A66 Width 21 Type:  Text (Left justified) :DETERMINING PROFIT
```

```
Position A67 Width 21 Type:  Text (Repeating)       :-
Position A68 Width 21 Type:  Text (Left justified) :SALE PRICE
Position C68 Width 10 Type:  Numeric :+C63 =  33329.500000000000
Position A69 Width 21 Type:  Text (Left justified) :PROJECT COST
Position C69 Width 10 Type:  Numeric :+C60 =  13331.800000000000
Position A70 Width 21 Type:  Text (Repeating)       :-
Position C70 Width 10 Type:  Text (Repeating)       :-
Position A71 Width 21 Type:  Text (Left justified) :PROFIT
Position C71 Width 10 Type:  Numeric :+C68-C69 =  19997.700000000000
Position A77 Width 21 Type:  Text (Left justified) :SALES TOTALS
Position B77 Width 10 Type:  Text (Centered)        :$
Position C77 Width 10 Type:  Text (Centered)        :% OF TOTAL
Position A78 Width 21 Type:  Text (Repeating)       :=
Position B78 Width 10 Type:  Text (Repeating)       :=
Position C78 Width 10 Type:  Text (Repeating)       :=
Position A79 Width 21 Type:  Text (Left justified) :DIRECT LABOR
Position B79 Width 10 Type:  Numeric :+SUM(E35>E42) =  9009.000000000000
Position C79 Width 10 Type:  Numeric :(B79/B86!)*100 =  27.030108462473
Position A80 Width 21 Type:  Text (Left justified) :HATERIAL
Position B80 Width 10 Type:  Numeric :+SUM(E47>E52) =  987.800000000000
Position C80 Width 10 Type:  Numeric :(B80/B86!)*100 =  2.963740830196
Position A81 Width 21 Type:  Text (Left justified) :S.C. LABOR
Position B81 Width 10 Type:  Numeric :+SUM(E57) =  2400.000000000000
Position C81 Width 10 Type:  Numeric :(B81/B86!)*100 =  7.200828095231
Position A82 Width 21 Type:  Text (Left justified) :T & E
Position B82 Width 10 Type:  Numeric :+SUM(E64>E68) =  935.000000000000
Position C82 Width 10 Type:  Numeric :(B82/B86!)*100 =  2.805322612100
Position A83 Width 21 Type:  Text (Left justified) :MISC.
Position B83 Width 10 Type:  Numeric :+SUM(E72) =  0.000000000000
Position C83 Width 10 Type:  Numeric :(B83/B86!)*100 =  0.000000000000
Position A84 Width 21 Type:  Text (Left justified) :PROFIT
Position B84 Width 10 Type:  Numeric :+C71 =  19997.700000000000
Position C84 Width 10 Type:  Numeric :(B84/B86!)*100 =  60.000000000000
Position A85 Width 21 Type:  Text (Repeating)       :-
Position B85 Width 10 Type:  Text (Repeating)       :-
Position A86 Width 21 Type:  Text (Left justified) :TOTAL SALES PRICE
Position B86 Width 10 Type:  Numeric :+SUM(B79>B84) =  33329.500000000000
Position B87 Width 10 Type:  Text (Repeating)       :=
Position A88 Width 21 Type:  Text (Left justified) :SALE PRICE
Position B88 Width 10 Type:  Numeric :+C63 =  33329.500000000000
```

CalcStar File — Chapter 11 — 4WDTRUCK.DMP

```
Position A1 Width 25 Type:  Text (Left justified) :Item.....................
Position B1 Width 10 Type:F Text (Left justified) :4WD TRUCK
Position A2 Width 25 Type:  Text (Left justified) :Initial Value ($).....
Position B2 Width 10 Type:F Numeric :14500 =  14500.000000000000
Position A3 Width 25 Type:  Text (Left justified) :Depreciation Rate (%)....
Position B3 Width 10 Type:F Numeric :25 =  25.000000000000
Position A4 Width 25 Type:  Text (Left justified) :Year Acquired.............
Position B4 Width 10 Type:F Numeric :1982 =  1982.000000000000
Position A5 Width 25 Type:  Text (Left justified) :Residual Value ($).....
Position B5 Width 10 Type:F Numeric :1450 =  1450.000000000000
Position A6 Width 25 Type:  Text (Repeating)       :-
Position B6 Width 10 Type:  Text (Repeating)       :-
Position C6 Width 10 Type:  Text (Repeating)       :-
Position D6 Width 10 Type:  Text (Repeating)       :-
Position E6 Width 10 Type:  Text (Repeating)       :-
Position B7 Width 10 Type:  Text (Centered)        :Year
Position C7 Width 10 Type:  Text (Centered)        :Dep. Exp.
Position D7 Width 10 Type:  Text (Centered)        :Acc. Dep.
```

```
Position E7 Width 10 Type:  Text (Centered)       :Book Val.
Position B8 Width 10 Type:  Text (Repeating)      :=
Position C8 Width 10 Type:  Text (Repeating)      :=
Position D8 Width 10 Type:  Text (Repeating)      :=
Position E8 Width 10 Type:  Text (Repeating)      :=
Position E9 Width 10 Type:  Numeric :+B2=0:" ":+B2 =  14500.000000000000
Position B10 Width 10 Type:  Numeric :+B2=0:"no entry":+B4+1 =  1983.000000000000
Position C10 Width 10 Type:  Numeric :+B2=0:" ":+B3%E9 =  3625.000000000000
Position D10 Width 10 Type:  Numeric :+B2=0:" ":+C10 =  3625.000000000000
Position E10 Width 10 Type:  Numeric :+B2=0:" ":+E9-C10 =  10875.000000000000
Position B11 Width 10 Type:  Numeric :+B2=0:"no entry":+B10+1 =  1984.000000000000
Position C11 Width 10 Type:  Numeric :+B2=0:" ":+B3%E10 =  2718.750000000000
Position D11 Width 10 Type:  Numeric :+B2=0:" ":+C11+D10 =  6343.750000000000
Position E11 Width 10 Type:  Numeric :+B2=0:" ":+E10-C11 =  8156.250000000000
Position B12 Width 10 Type:  Numeric :+E11-B5!<=0:" ":+B11+1 =  1985.000000000000
Position C12 Width 10 Type:  Numeric :+E11-B5!<=0:" ":+B3!%E11 =  2039.062500000000
Position D12 Width 10 Type:  Numeric :+E11-B5!<=0:" ":+C12+D11 =  8382.812500000000
Position E12 Width 10 Type:  Numeric :+E11-B5!<=0:" ":+E11-C12 =  6117.187500000000
Position B13 Width 10 Type:  Numeric :+E12-B5!<=0:" ":+B12+1 =  1986.000000000000
Position C13 Width 10 Type:  Numeric :+E12-B5!<=0:" ":+B3!%E12 =  1529.296875000000
Position D13 Width 10 Type:  Numeric :+E12-B5!<=0:" ":+C13+D12 =  9912.109375000000
Position E13 Width 10 Type:  Numeric :+E12-B5!<=0:" ":+E12-C13 =  4587.890625000000
Position B14 Width 10 Type:  Numeric :+E13-B5!<=0:" ":+B13+1 =  1987.000000000000
Position C14 Width 10 Type:  Numeric :+E13-B5!<=0:" ":+B3!%E13 =  1146.972656250000
Position D14 Width 10 Type:  Numeric :+E13-B5!<=0:" ":+C14+D13 =  11059.082031250000
Position E14 Width 10 Type:  Numeric :+E13-B5!<=0:" ":+E13-C14 =  3440.917968750000
Position B15 Width 10 Type:  Numeric :+E14-B5!<=0:" ":+B14+1 =  1988.000000000000
Position C15 Width 10 Type:  Numeric :+E14-B5!<=0:" ":+B3!%E14 =  860.229492187500
Position D15 Width 10 Type:  Numeric :+E14-B5!<=0:" ":+C15+D14 =  11919.311523438000
Position E15 Width 10 Type:  Numeric :+E14-B5!<=0:" ":+E14-C15 =  2580.688476562500
Position B16 Width 10 Type:  Numeric :+E15-B5!<=0:" ":+B15+1 =  1989.000000000000
Position C16 Width 10 Type:  Numeric :+E15-B5!<=0:" ":+B3!%E15 =  645.172119140630
Position D16 Width 10 Type:  Numeric :+E15-B5!<=0:" ":+C16+D15 =  12564.483642579000
Position E16 Width 10 Type:  Numeric :+E15-B5!<=0:" ":+E15-C16 =  1935.516357421900
Position B17 Width 10 Type:  Numeric :+E16-B5!<=0:" ":+B16+1 =  1990.000000000000
Position C17 Width 10 Type:  Numeric :+E16-B5!<=0:" ":+B3!%E16 =  483.879089355480
Position D17 Width 10 Type:  Numeric :+E16-B5!<=0:" ":+C17+D16 =  13048.362731934000
Position E17 Width 10 Type:  Numeric :+E16-B5!<=0:" ":+E16-C17 =  1451.637268066400
Position B18 Width 10 Type:  Numeric :+E17-B5!<=0:" ":+B17+1 =  1991.000000000000
Position C18 Width 10 Type:  Numeric :+E17-B5!<=0:" ":+B3!%E17 =  362.909317016600
Position D18 Width 10 Type:  Numeric :+E17-B5!<=0:" ":+C18+D17 =  13411.272048951000
Position E18 Width 10 Type:  Numeric :+E17-B5!<=0:" ":+E17-C18 =  1088.727951049800
Position B19 Width 10 Type:  Numeric :+E18-B5!<=0:" ":+B18+1 = "          "
Position C19 Width 10 Type:  Numeric :+E18-B5!<=0:" ":+B3!%E18 = "          "
Position D19 Width 10 Type:  Numeric :+E18-B5!<=0:" ":+C19+D18 = "          "
Position E19 Width 10 Type:  Numeric :+E18-B5!<=0:" ":+E18-C19 = "          "
```

CalcStar File — Chapter 12 — FORECAST

```
Position B1 Width 10 Type:  Text (Right justified):JAN
Position C1 Width 10 Type:  Text (Right justified):FEB
Position D1 Width 10 Type:  Text (Right justified):MAR
Position E1 Width 10 Type:  Text (Right justified):APRIL
Position F1 Width 10 Type:  Text (Right justified):MAY
Position G1 Width 10 Type:  Text (Right justified):JUN
Position B2 Width 10 Type:  Numeric :1 =  1.000000000000
Position C2 Width 10 Type:  Numeric :2 =  2.000000000000
Position D2 Width 10 Type:  Numeric :3 =  3.000000000000
Position E2 Width 10 Type:  Numeric :4 =  4.000000000000
Position F2 Width 10 Type:  Numeric :5 =  5.000000000000
```

```
Position G2 Width 10 Type:  Numeric :6 =  6.000000000000
Position B3 Width 10 Type:  Text (Repeating)      :=
Position C3 Width 10 Type:  Text (Repeating)      :=
Position D3 Width 10 Type:  Text (Repeating)      :=
Position E3 Width 10 Type:  Text (Repeating)      :=
Position F3 Width 10 Type:  Text (Repeating)      :=
Position G3 Width 10 Type:  Text (Repeating)      :=
Position A4 Width 15 Type:  Text (Left justified) :district A
Position A5 Width 15 Type:  Text (Right justified):product 1
Position B5 Width 10 Type:  Numeric :300 =  300.000000000000
Position C5 Width 10 Type:  Numeric :435 =  435.000000000000
Position D5 Width 10 Type:  Numeric :650 =  650.000000000000
Position E5 Width 10 Type:  Numeric :875 =  875.000000000000
Position F5 Width 10 Type:  Numeric :1200 =  1200.000000000000
Position G5 Width 10 Type:  Numeric :1440 =  1440.000000000000
Position H5 Width 10 Type:  Numeric :+regr(B2>G2,B5) =  816.666666666670
Position I5 Width 10 Type:  Numeric :+proj(10) =  2343.238095238100
Position J5 Width 10 Type:  Numeric :+slope() =  234.857142857140
Position A6 Width 15 Type:  Text (Right justified):product 2
Position B6 Width 10 Type:  Numeric :100 =  100.000000000000
Position C6 Width 10 Type:  Numeric :92 =  92.000000000000
Position D6 Width 10 Type:  Numeric :81 =  81.000000000000
Position E6 Width 10 Type:  Numeric :64 =  64.000000000000
Position F6 Width 10 Type:  Numeric :55 =  55.000000000000
Position G6 Width 10 Type:  Numeric :47 =  47.000000000000
Position H6 Width 10 Type:  Numeric :+regr(B2>G2,B6) =  73.166666666667
Position I6 Width 10 Type:  Numeric :+proj(10) =  0.180952380960
Position J6 Width 10 Type:  Numeric :+slope() = -11.228571428571
Position A8 Width 15 Type:  Text (Left justified) :advertising $$
Position B8 Width 10 Type:  Numeric :1230 =  1230.000000000000
Position C8 Width 10 Type:  Numeric :1300 =  1300.000000000000
Position D8 Width 10 Type:  Numeric :1435 =  1435.000000000000
Position E8 Width 10 Type:  Numeric :1450 =  1450.000000000000
Position F8 Width 10 Type:  Numeric :1510 =  1510.000000000000
Position G8 Width 10 Type:  Numeric :1530 =  1530.000000000000
Position H8 Width 10 Type:  Numeric :+regr(B8>G8,B5) =  816.666666666670
Position I8 Width 10 Type:  Numeric :+proj(1750.88) =  1999.980961977000
Position J8 Width 10 Type:  Numeric :+slope() =  3.462885933561
```

CalcStar File — Chapter 13 — INCOME.DMP

```
Position B1 Width 10 Type:  Text (Right justified):Summer of
Position C1 Width 10 Type:  Text (Right justified):Summer of
Position D1 Width 10 Type:  Text (Right justified):Summer of
Position E1 Width 10 Type:  Text (Right justified):Summer of
Position F1 Width 10 Type:  Text (Right justified):Summer of
Position G1 Width 10 Type:  Text (Right justified):Summer of
Position B2 Width 10 Type:  Numeric :78 =  78.000000000000
Position C2 Width 10 Type:  Numeric :1+B2 =  79.000000000000
Position D2 Width 10 Type:  Numeric :1+C2 =  80.000000000000
Position E2 Width 10 Type:  Numeric :1+D2 =  81.000000000000
Position F2 Width 10 Type:  Numeric :1+E2 =  82.000000000000
Position G2 Width 10 Type:  Numeric :1+F2 =  83.000000000000
Position B3 Width 10 Type:  Text (Repeating)      :-
Position C3 Width 10 Type:  Text (Repeating)      :-
Position D3 Width 10 Type:  Text (Repeating)      :-
Position E3 Width 10 Type:  Text (Repeating)      :-
Position F3 Width 10 Type:  Text (Repeating)      :-
Position G3 Width 10 Type:  Text (Repeating)      :-
Position A4 Width 28 Type:  Text (Left justified) :Net sales
Position B4 Width 10 Type:  Numeric :4000 =  4000.000000000000
```

```
Position C4 Width 10 Type:  Numeric :4800 =  4800.000000000000
Position D4 Width 10 Type:  Numeric :4848 =  4848.000000000000
Position E4 Width 10 Type:  Numeric :5575 =  5575.000000000000
Position F4 Width 10 Type:  Numeric :6523 =  6523.000000000000
Position G4 Width 10 Type:  Numeric :7762 =  7762.000000000000
Position A5 Width 28 Type:  Text (Left justified) :Cost of goods sold
Position B5 Width 10 Type:  Numeric :3000 =  3000.000000000000
Position C5 Width 10 Type:  Numeric :3600 =  3600.000000000000
Position D5 Width 10 Type:  Numeric :3636 =  3636.000000000000
Position E5 Width 10 Type:  Numeric :4181 =  4181.000000000000
Position F5 Width 10 Type:  Numeric :4892 =  4892.000000000000
Position G5 Width 10 Type:  Numeric :5821 =  5821.000000000000
Position B6 Width 10 Type:  Text (Repeating)      :-
Position C6 Width 10 Type:  Text (Repeating)      :-
Position D6 Width 10 Type:  Text (Repeating)      :-
Position E6 Width 10 Type:  Text (Repeating)      :-
Position F6 Width 10 Type:  Text (Repeating)      :-
Position G6 Width 10 Type:  Text (Repeating)      :-
Position A7 Width 28 Type:  Text (Left justified) :    Gross profit on sales
Position B7 Width 10 Type:  Numeric :+B4-B5 =  1000.000000000000
Position C7 Width 10 Type:  Numeric :+C4-C5 =  1200.000000000000
Position D7 Width 10 Type:  Numeric :+D4-D5 =  1212.000000000000
Position E7 Width 10 Type:  Numeric :+E4-E5 =  1394.000000000000
Position F7 Width 10 Type:  Numeric :+F4-F5 =  1631.000000000000
Position G7 Width 10 Type:  Numeric :+G4-G5 =  1941.000000000000
Position B8 Width 10 Type:  Text (Repeating)      :-
Position C8 Width 10 Type:  Text (Repeating)      :-
Position D8 Width 10 Type:  Text (Repeating)      :-
Position E8 Width 10 Type:  Text (Repeating)      :-
Position F8 Width 10 Type:  Text (Repeating)      :-
Position G8 Width 10 Type:  Text (Repeating)      :-
Position A9 Width 28 Type:  Text (Left justified) :Operating expenses:
Position A10 Width 28 Type:  Text (Left justified) :  Selling expenses
Position B10 Width 10 Type:  Numeric :400 =  400.000000000000
Position C10 Width 10 Type:  Numeric :480 =  480.000000000000
Position D10 Width 10 Type:  Numeric :485 =  485.000000000000
Position E10 Width 10 Type:  Numeric :558 =  558.000000000000
Position F10 Width 10 Type:  Numeric :653 =  653.000000000000
Position G10 Width 10 Type:  Numeric :777 =  777.000000000000
Position A11 Width 28 Type:  Text (Left justified) :  Advertising
Position B11 Width 10 Type:  Numeric :300 =  300.000000000000
Position C11 Width 10 Type:  Numeric :360 =  360.000000000000
Position D11 Width 10 Type:  Numeric :364 =  364.000000000000
Position E11 Width 10 Type:  Numeric :419 =  419.000000000000
Position F11 Width 10 Type:  Numeric :490 =  490.000000000000
Position G11 Width 10 Type:  Numeric :583 =  583.000000000000
Position B12 Width 10 Type:  Text (Repeating)      :-
Position C12 Width 10 Type:  Text (Repeating)      :-
Position D12 Width 10 Type:  Text (Repeating)      :-
Position E12 Width 10 Type:  Text (Repeating)      :-
Position F12 Width 10 Type:  Text (Repeating)      :-
Position G12 Width 10 Type:  Text (Repeating)      :-
Position A13 Width 28 Type:  Text (Left justified) :    Total operating expenses
Position B13 Width 10 Type:  Numeric :+B10+B11 =  700.000000000000
Position C13 Width 10 Type:  Numeric :+C10+C11 =  840.000000000000
Position D13 Width 10 Type:  Numeric :+D10+D11 =  849.000000000000
Position E13 Width 10 Type:  Numeric :+E10+E11 =  977.000000000000
Position F13 Width 10 Type:  Numeric :+F10+F11 =  1143.000000000000
Position G13 Width 10 Type:  Numeric :+G10+G11 =  1360.000000000000
Position B14 Width 10 Type:  Text (Repeating)      :-
Position C14 Width 10 Type:  Text (Repeating)      :-
Position D14 Width 10 Type:  Text (Repeating)      :-
Position E14 Width 10 Type:  Text (Repeating)      :-
```

```
Position F14 Width 10 Type:  Text (Repeating)      :-
Position G14 Width 10 Type:  Text (Repeating)      :-
Position A15 Width 28 Type:  Text (Left justified) :Income before income tax
Position B15 Width 10 Type:  Numeric :+B7-B13 =  300.000000000000
Position C15 Width 10 Type:  Numeric :+C7-C13 =  360.000000000000
Position D15 Width 10 Type:  Numeric :+D7-D13 =  363.000000000000
Position E15 Width 10 Type:  Numeric :+E7-E13 =  417.000000000000
Position F15 Width 10 Type:  Numeric :+F7-F13 =  488.000000000000
Position G15 Width 10 Type:  Numeric :+G7-G13 =  581.000000000000
Position A16 Width 28 Type:  Text (Left justified) :Income tax
Position B16 Width 10 Type:  Numeric :15%B15 =  45.000000000000
Position C16 Width 10 Type:  Numeric :15%C15 =  54.000000000000
Position D16 Width 10 Type:  Numeric :15%D15 =  54.450000000000
Position E16 Width 10 Type:  Numeric :15%E15 =  62.550000000000
Position F16 Width 10 Type:  Numeric :15%F15 =  73.200000000000
Position G16 Width 10 Type:  Numeric :15%G15 =  87.150000000000
Position B17 Width 10 Type:  Text (Repeating)      :-
Position C17 Width 10 Type:  Text (Repeating)      :-
Position D17 Width 10 Type:  Text (Repeating)      :-
Position E17 Width 10 Type:  Text (Repeating)      :-
Position F17 Width 10 Type:  Text (Repeating)      :-
Position G17 Width 10 Type:  Text (Repeating)      :-
Position A18 Width 28 Type:  Text (Left justified) :NET INCOME
Position B18 Width 10 Type:  Numeric :+B15-B16 =  255.000000000000
Position C18 Width 10 Type:  Numeric :+C15-C16 =  306.000000000000
Position D18 Width 10 Type:  Numeric :+D15-D16 =  308.550000000000
Position E18 Width 10 Type:  Numeric :+E15-E16 =  354.450000000000
Position F18 Width 10 Type:  Numeric :+F15-F16 =  414.800000000000
Position G18 Width 10 Type:  Numeric :+G15-G16 =  493.850000000000
Position B19 Width 10 Type:  Text (Repeating)      :=
Position C19 Width 10 Type:  Text (Repeating)      :=
Position D19 Width 10 Type:  Text (Repeating)      :=
Position E19 Width 10 Type:  Text (Repeating)      :=
Position F19 Width 10 Type:  Text (Repeating)      :=
Position G19 Width 10 Type:  Text (Repeating)      :=
Position A20 Width 28 Type:  Text (Left justified) :Projection of Sales in '85....
Position B20 Width 10 Type:  Numeric :+regr(B2>G2,B4):"..... =  0.000000000000
Position C20 Width 10 Type:  Numeric :+proj(85) =  0.000000000000
Position A21 Width 28 Type:  Text (Left justified) :Projection of Sales w/
Position A22 Width 28 Type:  Text (Left justified) :   Advertising at 1000.....
Position B22 Width 10 Type:  Numeric :+regr(B11>G11,B4):"..... =  0.000000000000 (error)
Position C22 Width 10 Type:  Numeric :+proj(1000) =  0.000000000000
Position A23 Width 28 Type:  Text (Left justified) :Advertising Expense Needed
Position A24 Width 28 Type:  Text (Left justified) :   to Reach Sales of $15,000....
Position B24 Width 10 Type:  Text (Repeating)      :.
Position C24 Width 10 Type:  Numeric :+depd(15000) =  0.000000000000 (error)
```

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;A sets cursor on a prearranged course 11-3,14-1

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;CR copies formulas relative to the cell location 6-7, 8-9, 14-2

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;DR deletes a row 14-4

;DA deletes an entire worksheet 3-10, 5-2, 14-4

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;FP changes decimal precision 6-2, 10-3, 14-5

;FF changes form mode 11-3, 14-7

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;RA recalculates all of the formulas in the worksheet 7-4, 14-16

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